UG Program (4 years Honors) Structure
(2020-21 onwards)
(Draft: 29jan21)

Date of Joint BOS held: 22.01.21

1. **Program Structure for UG program (4 years Honors):** (3rd and 4th year detailed design will be followed as per APSCHE GUIDELINES)

CBCS CURRICULAR FRAMEWORK (2020 - 2021 ONWARDS) - BACHELOR OF ARTS/commerce/BBA/BCA															
Subjects/Semesters		I		II		III		IV		V		VI			
		Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits		
Languages												THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester		FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two	
English		4	3	4	3	4	3								
Language (H/T/S)		4	3	4	3	4	3								
Life Skill Courses		2	2	2	2	2+2	2+2								
Skill Development Courses		2	2	2+2	2+2	2	2								
Core Papers															
M - 1	C1 to C5	5	4	5	4	5	4	5 5	4 4						
M - 2	C1 to C5	5	4	5	4	5	4	5 5	4 4						
M - 3	C1 to C5	5	4	5	4	5	4	5 5	4 4						
M - 1	SEC (C6,C7)									5 5	4 4				
M - 2	SEC (C6,C7)									5 5	4 4				
M - 3	SEC (C6,C7)									5 5	4 4				
Hrs/W (Academic Credits)		27	22	29	24	29	24	30	24	30	24	0	12	4	4
Project Work															
Extension Activities (Non Academic Credits)															
NCC/NSS/Sports/Extra Curricular									2						
Yoga							1		1						
Extra Credits															
Hrs/W (Total Credits)		27	22	29	24	29	25	30	27	30	24	0	12	4	4

M= Major; C= Core

CBCS CURRICULAR FRAMEWORK (2020 - 2021 ONWARDS) – BACHELOR OF Science															
Subjects/ Semesters		I		II		III		IV		V		VI			
		H/W	C	H/W	C	H/W	C	H/W	C	H/W	C	H/W	C		
Languages															
English		4	3	4	3	4	3								
Language (H/T/S)		4	3	4	3	4	3								
Life Skill Courses		2	2	2	2	2+2	2+2								
Skill Development Courses		2	2	2+2	2+2	2	2								
Core Papers															
M-1	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
M-2	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
M-3	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
M-1	SEC (C6,C7)									4+2 4+2	4+1 4+1				
M-2	SEC (C6,C7)									4+2 4+2	4+1 4+1				
M-3	SEC (C6,C7)									4+2 4+2	4+1 4+1				
Hrs/ W (Academic Credits)		30	25	32	27	32	27	36	30	36	30	0	12	4	4
Project Work															
Extension Activities (Non Academic Credits)															
NCC/NSS/Sports/Extra Curricular									2						
Yoga							1		1						
Extra Credits															
Hrs/W (Total Credits)		30	25	32	27	32	28	36	33	36	30	0	12	4	4

THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester

FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two summer vacations).

ADIKAVI NANNAYA UNIVERSITY
RAJAHMAHENDRAVARAM, A.P., INDIA

Marks & Credits distribution: **Arts/Commerce/BBA/BCA**

Sl. No	Course type	No. of courses	Each course teaching Hrs/wk	Credit for each course	Total credits	Each course evaluation			Total marks
						Conti-exam	Univ-exam	Total	
1	English	3	4	3	9	25	75	100	300
2	S.Lang	3	4	3	9	25	75	100	300
3	LS	4	2	2	8	0	50	50	200
4	SD	4	2	2	8	0	50	50	200
5	Major/Core/SE -I	5+2	5	4	28	25	75	100	700
	Major/Core/SE -II	5+2	5	4	28	25	75	100	700
	Major/Core/SE -III	5+2	5	4	28	25	75	100	700
6	Summer-Intern	2		4	8		100	200	200
7	Internship/ Apprentice/ on the job training	1		12	12		200	200	200
		38			**138**				**3500**
8	**Extension Activities (Non Academic Credits)**								
	NCC/NSS/Sports/Extra Curricular			2	2				
	Yoga	2		1	2				
	Extra Credits								
	Total	**40**			**142**				

Marks & Credits distribution: **UG-Sciences**

Sl. No	Course type	No. of courses	Each course teaching Hrs/wk	Credit for each course	Total credits	Each course evaluation			Total marks
						Conti-Assess	Univ-exam	Total	
1	English	3	4	3	9	25	75	100	300
2	S.Lang	3	4	3	9	25	75	100	300
3	LS	4	2	2	8	0	50	50	200
4	SD	4	2	2	8	0	50	50	200
5	Core/SE -I	5+2	4+2	4+1	35	25	75+50	150	1050
	Core/SE -II	5+2	4+2	4+1	35	25	75+50	150	1050
	Core/SE -III	5+2	4+2	4+1	35	25	75+50	150	1050
6	Summer-Intern	2		4	8		100	200	200
7	Internship/ Apprentice/ on the job training	1		12	12		200	200	200
		38			**159**				**4550**
8	**Extension Activities (Non Academic Credits)**								
	NCC/NSS/Sports/ Extra Curricular			2	2				
	Yoga	2		1	2				
	Extra Credits								
	Total	**40**			**142**				

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

Higher Education - Non-professional UG Programmes – National Educational Policy 2020 - Introduction of four (4) year Honours Programme with an exit option after three (3) years in all University Colleges and its affiliated colleges from the academic year 2020-21 - Permission accorded – Orders issued

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HIGHER EDUCATION (CE) DEPARTMENT

G.O.MS.NO. 46 DATED: 22-12-2020.
Read :-

Ref:APSCHE Lr.No.APSCHE/AC/CBCS-2019-20/Review,
Dated :22.09.2020.

-oOo-

ORDER: -

The Government of India has announced the National Educational Policy, 2020 with an objective to ensure equity and inclusion in and through education by addressing all forms of exclusion and marginalization, disparity, vulnerability and inequality in education access, participation, retention and completion and in learning outcomes. Part II Chapter 11 clause 9 of the National Education Policy, 2020 recommends that "*The structure and lengths of degree programmes shall be adjusted accordingly. The undergraduate degree will be of either 3 or 4-year duration, with multiple exit options within this period, with appropriate certifications, e.g., a certificate after completing 1 year in a discipline or field including vocational and professional areas, or a diploma after 2 years of study, or a Bachelor's degree after a 3-year programme. The 4-year multidisciplinary Bachelor's programme, however, shall be preferred option since it allows the opportunity to experience the full range of holistic and multidisciplinary education in addition to a focus on the chosen major and minors as per the choices of the student. An Academic Bank of Credit (ABC) shall be established which would digitally store the academic credits earned from various recognized Higher Education Institutions so that the degrees from an Higher Education Institutions can be awarded taking into account credits earned. The 4-year programme may also lead to a degree 'with Research' if the student completes a rigorous research project in their major area(s) of study as specified by the Higher Education Institutions".*

2. The Review Meeting on Higher Education with all functionaries of Higher Education and Technical Education held on 6.8.2020, which was headed by the Hon'ble Chief Minister of Andhra Pradesh, has unanimously decided to introduce four (4) year Honours Programme with an exit option after three (3) years from the academic year 2020-21 and also decided that the students who opt to exit after three (3)

PTO

years will be awarded a UG Degree i.e BA/B.Sc/B.Com etc and students who complete four (4) years Degree Programme will be awarded an Honours Degree.

3. Among the many changes sought to be brought in by the National Education Policy, 2020, the duration of Undergraduate Programmes can be three (3) or four (4) years, with multiple entry and exit options.

4. The A.P State Council of Higher Education, in association with the academic experts of the Universities and Collegiate Education, has revised the syllabus of non-professional UG Programmes to be in effect from 2020-21 under Choice Based Credit System for its implementation in all the University Colleges and its affiliated colleges with the approval of the respective statutory bodies of the Universities.

5. After careful examination of the matter, the Government hereby decided to accord permission to the State funded Universities in the State of Andhra Pradesh for introduction of four (4) year Honours Programmes with ten (10) months of mandatory internship, with an exit option at the end of the 3rd year. Students who opt to exit after three (3) years will be awarded a U.G. Degree i.e BA/B.Sc/B.Com etc. and students who complete four (4) years Degree Programme with a rigorous research project in the major area(s) of study will be awarded an Honours Degree.

6. In view of the introduction of the four (4) year Honours Programmes, all three (3) year Honours Programmes are withdrawn from 2020-21.

7. The Universities in the State of Andhra Pradesh are requested to adopt the orders issued by the Government with the approval of their respective Statutory Boards for its implementation of the aforesaid orders in all the University Colleges and its affiliated colleges under their jurisdiction from the academic year 2020-21.

8. The Secretary, A.P State Council of Higher Education, Mangalagiri, Guntur District, the Special Commissioner of Collegiate Education and the Registrars of the State Universities shall take further action in the matter accordingly.

9. This order issues with the concurrence of the Finance Department vide their U.O.FMUOMISC/106/2020, (Compute No.1281610) dated: 16.12.2020.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

SATISH CHANDRA
SPECIAL CHIEF SECRETARY TO GOVERNMENT

To
The Secretary, A.P.State Council of Higher Education, Mangalagiri, Guntur District.
The Special Commissioner of Collegiate Education, Govt.of A.P., Vijayawada.

Contd.,P.3

The Registrars of the State Universities in Andhra Pradesh.

Copy to:

The Chairman, AP State Council of Higher Education, Mangalagiri, Guntur District.
The Vice-Chancellors of the State Universities in Andhra Pradesh.
The P.S. to Hon'ble Chief Minister, Andhra Pradesh.
The P.S. to Hon'ble Minister for Education, Andhra Pradesh.
The PS to Spl. C.S to Govt., Higher Education Department.
The PS to Prl. Secty to Govt., Finance Department.
Law (B) Department.
S.F./S.C.

// FORWARDED::BY ORDER//

SECTION OFFICER

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

As per the revised CBCS based curriculum which is implemented from the academic year 2020-21, three internships are mandatory for all students irrespective of the type of College (Govt / Private Aided / Autonomous / Constituent / Private Un-aided) and the programme of study (BA/B.Com/B.Sc/BBA/Honours, etc.).The following is the evaluation methodology for awarding marks/grades.

First internship (April-May after 1st year examinations): Community Service Project

To inculcate social responsibility and compassionate commitment among the students, the summer vacation in the intervening 1st and 2nd years of study shall be for Community Service Project (the detailed guidelines are circulated separately).

Learning outcomes:

- To facilitate an understanding of the issues that confronts the vulnerable / marginalized sections of the society.
- To initiate team processes with the student groups for societal change.
- To provide students an opportunity to familiarize themselves with urban / rural community they live in.
- To enable students to engage in the development of the community.
- To plan activities based on the focused groups.\
- To know the ways of transforming the society through systematic programme implementation.

Assessment Model for the First Internship (April-May after 1styear examinations):

There will be only internal evaluation for this internship. Each faculty member is to be assigned with 10 t0 15 students depending upon availability of the faculty members. The faculty member will act as a faculty-mentor for the group and is in-charge for the learning activities of the students and also for the comprehensive and continuous assessment of the students.

The assessment is to be conducted for 100 marks. The number of credits assigned is 4. Later as per the present practice the marks are converted into grades and grade points to include finally in the SGPA and CGPA.

The weightings shall be:

Project Log	20%
Project Implementation	30%
Project report	25%,
Presentation	25%

Each student is required to maintain an individual logbook, where he/she is supposed to record day to day activities. The project log is assessed on anindividual basis, thus allowing for individual members within groups to be assessed this way.The assessment will take into consideration the individual student's involvement in the assigned work.

While grading the student's performance, using the student's project log, the following should be taken into account -

a. The individual student's effort and commitment.
b. The originality and quality of the work produced by the individual student.
c. The student's integration and co-operation with the work assigned.
d. The completeness of the logbook.

The assessment for the ***Community Service Project implementation*** shall include the following components and based on the entries of Project Log and Project Report:

a. Orientation to the community development
b. Conducting a baseline assessment of development needs
c. Number and Quality of Awareness Programmes organised on beneficiary programmes and improvement in quality of life, environment and social consciousness, motivation and leadership, personality development,etc.
d. Number Quality and Duration of Intervention/service Programmes (Prevention or promotion programs that aim to promote behavioural change in defined community contexts to address social problems) organised.
e.Followup Programmes suggested (Referral Services, Bringing Community Participation)
f. Developing short and mid-term action plans in consultation with local leadership and local government officers.

The **Project Report** should contain

a) Introduction, scope, objectives, and methodology
b) Project specifications (area / background of the work assigned).
c) Problems identified.
d) Analyses of the problems
e) Community awareness programmes conducted w.r.t the problems and their outcomes.
f) Intervention/service programmes taken up
g) Short-term and long term action plan for implementation
h) Recommendations and conclusions.
i) References

The **Project Presentation** is to be made by the student after he/she reports back to the College. The components for assessment are –
a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

Example:

Name of the Student:	X. YY ZZZ	
Class & Year of Study	II B.A. 2021 - 2022	
Registered Number	000000	
Assessment Component	**Max Marks**	**Marks Secured**
1. Project Log	20	15
2. Project Implementation	30	20
3. Project Report	25	20
4. Presentation	25	20
TOTAL OUT OF 100	**100**	**75**

Letter grade	**Grade Point**	**Credits**	**Credit Point**
O (outstanding)	10	2	20
A+ (Excellent)	9	2	18
A (Very Good)	8	2	16
B+ (Good)	7	2	14
B (Above average)	6	2	12
C (Average)	5	2	10
D (Pass)	4	2	8
F (Fail)	0		
Ab (Absent)	0		

In the above example, 75 marks are converted to letter grade / grade point.

Letter grade	**Grade Point**	**Credits**	**Credit Point**
B+ (Good)	7	2	14

Second Internship (April-May after 2nd year examinations): Apprenticeship / Internship / On the job training / In-house Project / Off-site Project

To make the students employable, an Apprenticeship / Internship / On the job training / In-house Project / Off-site Project shall be undertaken by the students in the intervening summer vacation between the 2nd and 3rd years.

Learning outcomes

- Explore career alternatives prior to graduation.
- Integrate theory and practice.

- Assess interests and abilities in their field of study.
- Learn to appreciate work and its function towards future .
- Develop work habits and attitudes necessary for job success.
- Develop communication, interpersonal and other critical skills in the future job.
- Build a record of work experience.
- Acquire employment contacts leading directly to a full-time job following graduation from college.
- Acquire additional skills required for world of work.

Assessment Model for the Second Internship (April-May after 2nd year examinations):

There will be only internal evaluation for this internship. Each faculty member is to be assigned with 10 t0 15 students depending upon availability of the faculty members. The faculty member will act as a faculty-mentor for the group and is in-charge for the learning activities of the students and also for the comprehensive and continuous assessment of the students.

The assessment is to be conducted for 100 marks and the credits assigned are 4. Later as per the present practice the marks are converted into grades and grade points to include finally in the SGPA and CGPA.

The weightings shall be:

Project Log	20%
Project Implementation	30%
Project report	25%,
Presentation	25%

Each student is required to maintain an individual logbook, where he/she is supposed to record day to day activities. The project log is assessed on anindividual basis, thus allowing for individual members within groups to be assessed this way.The assessment will take into consideration the individual student's involvement in the assigned work.

While grading the student's performance, using the student's project log, the following should be taken into account -

a. The individual student's effort and commitment.
b. The originality and quality of the work produced by the individual student.
c. The student's integration and co-operation with the work assigned.
d. The completeness of the logbook.

The assessment for Project Implementation during ***second internship / Project Work / On the Job Training / Apprenticeship*** shall include the following components and based on the entries of Project Log and Project Report:

a. Involvement in the work assigned
b. Regularity in the work assigned
c. New knowledge acquired
d. New skill acquired

The Project Report should contain

a. Introduction.
b. Project specifications (area / background of the work assigned).
c. Problems taken up.
d. Analysis of the problem.
e. Recommendations and conclusions.

The Project Presentation is to be made by the student after he/she reports back to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

Example:

Name of the Student:	X. YY ZZZ	
Class & Year of Study	II B.A. 2021 - 2022	
Registered Number	000000	
Assessment Component	**Max Marks**	**Marks Secured**
1. Project Log	20	10
2. Project Implementation	30	15
3. Project Report	25	20
4. Presentation	25	20
TOTAL OUT OF 100	**100**	**65**

Letter grade	**Grade Point**	**Credits**	**Credit Point**
O (outstanding)	10	2	20
A+ (Excellent)	9	2	18
A (Very Good)	8	2	16
B+ (Good)	7	2	14
B (Above average)	6	2	12
C (Average)	5	2	10
D (Pass)	4	2	8
F (Fail)	0		
Ab (Absent)	0		

This may vary from University to University

In the above example, 75 marks are converted to letter grade / grade point.

Letter grade	Grade Point	Credits	Credit Point
B (Above average)	6	2	12

Third internship (5th/6thSemester period):

During the entire 5th /6th Semester, the student shall undergo Apprenticeship / Internship / On the Job Training. This is to ensure that the students develop hands on technical skills which will be of great help in facing the world of work.

Learning outcomes

- Explore career alternatives prior to graduation.
- Integrate theory and practice.
- Assess interests and abilities in their field of study.
- Learn to appreciate work and its function towards future .
- Develop work habits and attitudes necessary for job success.
- Develop communication, interpersonal and other critical skills in the future job.
- Build a record of work experience.
- Acquire employment contacts leading directly to a full-time job following graduation from college.
- Acquire additional skills required for world of work.

Assessment model for the semester long apprenticeship / on the job training / internships during the VI Semester:

The assessment for the V / VI Semester long apprenticeship is for 200 marks and credits assigned are 12.

A monthly report is to be submitted to the teacher guide online within 15 days after the completion of the every moth uptofour months. The last two months of internship period shall be used for preparation of final project report simultaneously undergoing on the job training / internship / apprenticeship.

The assessment for this internship / on the job training will be both internal and external assessment. The internal assessment will be for 25% of marks which will be continuous and the assessment by the industry / enterprise / organisation where the student does his/her internship will beindicated in grades. A template to that extent is appended as Annexure – 1. This assessment is to be conducted by a responsible person (General Manager / HR Manager / Head of the Division) in consultation with the supervisor under whom the internship was done.

The components of internal assessment during*this* ***third internship / Project Work / On the Job Training / Apprenticeship*** shall include the following components and based on the entries of Project Log and Project Report:

a. Involvement in the work assigned
b. Regularity in the work assigned
c. New knowledge acquired
d. New skill acquired

The Project Report should contain

a. Introduction.
b. Project specifications (area / background of the work assigned).
c. Problems taken up.
d. Analysis of the problem.
e. Recommendations and conclusions.

The Project Presentation is to be made by the student after he/she reports back to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

There shall be a final evaluation committee comprising of Principal, Teacher Guide, Internal Expert and External Expert nominated by the affiliating University. The final evaluation committee shall consider the following for evaluation –

A. Monthly Reports submitted by the student

B. Final Project Report

C. Grading given by the Company / Business unit / Enterprise where the student has undergone the training. The grades shall be converted into marks on the scale followed by the University.

To evaluate and award marks, the Committee conducts viva voce examination at the college.

Example:

Name of the Student:	X. YY ZZZ	
Class & Year of Study	III B.A. 2022 - 2023	
Registered Number	000000	
Internal Assessment Component	**Max. Marks**	**Marks Awarded**
1. Project Log	10	10
2. Project Implementation	20	15
3. Project Report	10	10
4. Presentation	10	5
TOTAL	**50**	**40**
External Assessment Component	**Max. Marks**	**Marks Awarded**

Performance Assessment by the Evaluation Committee, converting the grades awarded by the industry, enterprise, etc.	**100**	**80**
External Viva Voce	**50**	**30**
GRAND TOTAL	**200**	**150**

Letter grade	**Grade Point**	**Credits**	**Credit Point**
O (outstanding)	10	2	20
A+ (Excellent)	9	2	18
A (Very Good)	8	2	16
B+ (Good)	7	2	14
B (Above average)	6	2	12
C (Average)	5	2	10
D (Pass)	4	2	8
F (Fail)	0		
Ab (Absent)	0		

In the above example, 75 %marks are converted to letter grade / grade point.

B+ (Good)	7	2	14

Thus the Comprehensive Continuous Assessment for the projects/internships/on the job training shall focus on enhancing the student's learning by ensuring that the student invests considerable time in studying, preparing and building on academic skills, moulding them into competent and skill perspective workforce. The assessment should also cater to the improvement of education and institutional assessment system that portrays the student performance.

Student *internship / Project Work / On the Job Training / ApprenticeshipPerformance Evaluation*

Term of Internship: From dd/mm/yyyy To dd/mm/yyyy Date of Evaluation:

Student Name: & Registration No:

Organization Name& Address:

Name of the Supervisor:

Supervisor email/phone:

Faculty Internship Coordinator

Please attach: • **Internship Job Description**
• **Supervisor Comments** (i.e. strengths, areas for improvement, etc)

Please rate the intern's performance in the following areas:

Rating Scale: **Letter grade of CGPA calculation to be provided**

1)	**Oral communication**	**1**	**2**	**3**	**4**	**5**
2)	**Written communication**	**1**	**2**	**3**	**4**	**5**
3)	**Initiative**	**1**	**2**	**3**	**4**	**5**
4)	**Interaction with staff**	**1**	**2**	**3**	**4**	**5**
5)	**Attitude**	**1**	**2**	**3**	**4**	**5**
6)	**Dependability**	**1**	**2**	**3**	**4**	**5**
7)	**Ability to learn**	**1**	**2**	**3**	**4**	**5**
8)	**Planning and organization**	**1**	**2**	**3**	**4**	**5**
9)	**Professionalism**	**1**	**2**	**3**	**4**	**5**
10)	**Creativity**	**1**	**2**	**3**	**4**	**5**
11)	**Quality of work**	**1**	**2**	**3**	**4**	**5**
12)	**Productivity**	**1**	**2**	**3**	**4**	**5**
13)	**Progress of learning**	**1**	**2**	**3**	**4**	**5**
14)	**Adaptability to organization's culture/policies**	**1**	**2**	**3**	**4**	**5**
15)	**OVERALL PERFORMANCE**	**1**	**2**	**3**	**4**	**5**

Signature of the Supervisor **Signature of the HR Manger**

Course structure, Guidelines for Syllabus framing, scheme of Question paper and break-up of marks

UG Program (4 years Honors)

(2020-21 onwards)

(Draft: 21jan21)

Date of Joint BOS held:

BLUE PRINT
(2020-21 onwards)

Table of contents

S. No	Particulars	Page No.
1	Program Structure for UG Program	
2	Syllabus framing guidelines	
3	Blue print for Question paper preparation	
4	Model question papers	

1.cProgram Structure for UG program (4 years Honors)*

(3rd and 4th year detailed design will be followed as per APSCHE GUIDELINES)

CBCS CURRICULAR FRAMEWORK (2020 - 2021 ONWARDS) - BACHELOR OF ARTS/commerce/BBA/BCA

Subjects/Semesters		I		II		III		IV		V		VI			
		Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits	Hrs /W	Cre dits		
Languages												THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester		FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two	
English		4	3	4	3	4	3								
Language (H/T/S)		4	3	4	3	4	3								
Life Skill Courses		2	2	2	2	2+2	2+2								
Skill Development Courses		2	2	2+2	2+2	2	2								
Core Papers															
M - 1	C1 to C5	5	4	5	4	5	4	5 5	4 4						
M - 2	C1 to C5	5	4	5	4	5	4	5 5	4 4						
M - 3	C1 to C5	5	4	5	4	5	4	5 5	4 4						
M - 1	SEC (C6,C7)									5 5	4 4				
M - 2	SEC (C6,C7)									5 5	4 4				
M - 3	SEC (C6,C7)									5 5	4 4				
Hrs/W (Academic Credits)		27	22	29	24	29	24	30	24	30	24	0	12	4	4
Project Work															
Extension Activities (Non Academic Credits)															
NCC/NSS/Sports/Extra Curricular									2						
Yoga							1		1						
Extra Credits															
Hrs/W (Total Credits)		27	22	29	24	29	25	30	27	30	24	0	12	4	4

UG Sciences

CBCS CURRICULAR FRAMEWORK (2020 - 2021 ONWARDS) –
BACHELOR OF Science

Subjects/ Semesters		I		II		III		IV		V		VI			
		H/W	C	H/W	C	H/W	C	H/W	C	H/W	C	H/W	C		
Languages												THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester		FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two summer vacations).	
English		4	3	4	3	4	3								
Language (H/T/S)		4	3	4	3	4	3								
Life Skill Courses		2	2	2	2	2+2	2+2								
Skill Development Courses		2	2	2+2	2+2	2	2								
Core Papers															
M-1	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
M-2	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
M-3	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
M-1	SEC (C6,C7)									4+2 4+2	4+1 4+1				
M-2	SEC (C6,C7)									4+2 4+2	4+1 4+1				
M-3	SEC (C6,C7)									4+2 4+2	4+1 4+1				
Hrs/ W (Academic Credits)		30	25	32	27	32	27	36	30	36	30	0	12	4	4
Project Work															
Extension Activities (Non Academic Credits)															
NCC/NSS/Sports/Extra Curricular									2						
Yoga							1		1						
Extra Credits															
Hrs/W (Total Credits)		30	25	32	27	32	28	36	33	36	30	0	12	4	4

Marks & Credits distribution

Arts/Commerce/BBA/BCA:

Sl. No	Course type	No. of courses	Each course teaching Hrs/wk	Credit for each course	Total credits	Each course evaluation			Total marks
						Conti-exam	Univ-exam	Total	
1	English	3	4	3	9	25	75	100	300
2	S.Lang	3	4	3	9	25	75	100	300
3	LS	4	2	2	8	0	50	50	200
4	SD	4	2	2	8	0	50	50	200
5	Core/SE -I	5+2	5	4	28	25	75	100	700
	Core/SE -II	5+2	5	4	28	25	75	100	700
	Core/SE -III	5+2	5	4	28	25	75	100	700
6	Summer-Intern	2		4	8		100	200	200
7	Internship/ Apprentice/ on the job training	1		12	12		200	200	200
		38			**138**				**3500**
8	**Extension Activities (Non Academic Credits)**								
	NCC/NSS/Sports/Extra Curricular			2	2				
	Yoga	2		1	2				
	Extra Credits								
	Total	**40**			**142**				

Marks & Credits distribution

Sciences

Sl. No	Course type	No. of courses	Each course teaching Hrs/wk	Credit for each course	Total credits	Each course evaluation			Total marks
						Conti-Assess	Univ-exam	Total	
1	English	3	4	3	9	25	75	100	300
2	S.Lang	3	4	3	9	25	75	100	300
3	LS	4	2	2	8	0	50	50	200
4	SD	4	2	2	8	0	50	50	200
5	Core/SE -I	5+2	4+2	4+1	35	25	75+50	150	1050
	Core/SE -II	5+2	4+2	4+1	35	25	75+50	150	1050
	Core/SE -III	5+2	4+2	4+1	35	25	75+50	150	1050
6	Summer-Intern	2		4	8		100	200	200
7	Internship/ Apprentice/ on the job training	1		12	12		200	200	200
		38			**159**				**4550**
8	**Extension Activities (Non Academic Credits)**								
	NCC/NSS/Sports/ Extra Curricular			2	2				
	Yoga	2		1	2				
	Extra Credits								
	Total	**40**			**142**				

2.Syllabus framing guidelines

Each course (ie., paper) will have:

- **Aim,**
- **Learning outcome objectives,**
- **Continuous assessment methodologies,**
- **Co-curricular activities (i.e., measurable and general)**

2.1 Languages (First/Second): English 3 courses + second language 3 courses (each with 4 hrs/ 4credits)

- Each course will have 4hrs of teaching/week with 4 credits (i.e., 60hrs per semester teacher-student interactive sessions) per semester
- From 1st semester to 3rd semester, Each semester one first language and one second language course would be present (i.e., 3 first language and 3 second language courses).
- Each course consisting of Five units with 10 to 12 hrs of teachable syllabus in each unit.

2.2 Life skill courses and skill development courses: 4 courses of LS and 4 courses of SD (each with 2hrs/w and 2 credits)

- Each course will have 2hrs of teaching/week with 2 credits (i.e., 25 - 30hrs per semester teacher-student interactive sessions) per semester
- Four Life skill courses and four skill development courses are to be studied from 1st to 3rd semester (i.e., Life skill courses to be 1 + 1 + 2 and Skill development courses to be 1 + 2 + 1). In the 3rd semester, Environmental Education is a mandatory course in Life skill courses.
- Each course consisting of three units with 10 to 15 hrs of teachable syllabus in each unit.

2.3 Core & Skill enhancement courses: 5 + 2 courses (each course with 4 hrs/w theory and 2 hrs/w lab for 4 + 1 credits)

- Each course will have 4hrs of teaching/week with 4 credits (i.e., 50 - 60hrs per semester teacher-student interactive sessions) and 2hrs lab/practical/ problem solving with 1 credits (i.e., 10 – 12 lab/practical/problem solving experiments) per semester
- From 1st semester to 4th semester, in Each semester 3 courses (i.e., combination) from different disciplines (i.e., one from each core) would be present
- Each course consisting of five units with 10 to 12 hrs of teachable syllabus in each unit and 10 to 12 lab/practical/problems.

2.4 Community service/training during two summer breaks: 8 credits (i.e. each summer break with 4 credits for 100 marks)

2.5 Project/ Internship/Apprenticeship: 12 credits with 300 marks (in 5/6 semester)

3cBlue print for Question paper preparation

3.1 Languages (First/Second): English 3 courses and second language 3 courses.

- Each course of 4 hrs/ week containing 5 units of syllabi for 50 hrs teaching with 3 credits based on 100 marks evaluation. Continuous assessment: 25 marks and University sem-end exam: 75 marks (3hrs)
- Question paper would be in two sections (Section A and Section B) for 75 marks
- Section A consisting of 8 questions covering all units i.e., from each unit one question is to be given and remaining from any unit. Student has to write 5 questions and each question carries 5 marks (i.e., 5 X 5M = 25M).
- Section B consisting of 10 questions (i.e., from each unit two questions to be given with either or choice). Student has to write 5 questions and each question carries 10 marks (i.e., 10 X 5 = 50 marks). Each question to be answered with 10 to 15 points or 20 to 35 lines alongwith diagrams/equations/ figure/flow charts, if necessary.

3.2 Life /Skill development courses: 4 courses of LSC and 4 courses of SDC

- Each course of 2 hrs/ week containing 3 units of syllabi for 30 hrs teaching with 2 credits based on 50 marks evaluation. No internal/Continuous assessment. University sem-end exam: 50 marks (90 minutes)
- Question paper would be in two sections (Section A and Section B) for 50 marks
- **Section A** consisting of 8 questions covering all units (i.e., two questions from each unit and the remaining to be from any unit). Student has to write 4 questions and each question carries 5 marks (i.e., 4 X 5M = 20M). Each question to be answered with 5-7 points/10-15 lines of answer with necessary diagram/equations/ figure/flow charts, if necessary.
- **Section B** consisting of 6 questions covering all units (i.e., from each unit two questions to be given with either or choice). Student has to write 3 questions and Each question carries 10 marks. (i.e., 3 X 10M = 30M). Each question to be answered with 10 to 15 points or 20 to 35 lines alongwith diagrams/equations/ figure/flow charts, if necessary.

3.3 Core/Skill enhancement courses (each course with 5 credits): 5 core courses and 2 skill enhance courses of the subject.

a. Theory paper (4 credits) : Each course of 4 hrs/ week of theory with 5 units of syllabi for 60 hrs of teaching with 4 credits based on 100 marks evaluation/Examination i.e, continuous assessment for 25 marks and university sem end exam for 75 marks (3hrs).
   - Question paper would be in two sections (Section A and Section B) for 75 marks
   - **Section A** consisting of 8 questions covering all units i.e., from each unit one question to be given and remaining from any unit. Student has to

write 5 questions and each question carries 5 marks (i.e., 5 X 5M = 25M). Each question to be answered with 5-7 points/10-15 lines of answer with necessary diagram/equations/ figure/flow charts, if necessary.

- **Section B** consisting of 10 questions covering all units (i.e., from each unit two questions to be given with either or choice). Student has to write 5 questions and each question carries 10 marks (i.e., 5 X 10M = 50M). Each question to be answered with 10 to 15 points or 20 to 35 lines alongwith diagrams/equations/ figure/flow charts, if necessary.

b. Lab/Practical paper (1 credit): 50 marks - 3hrs exam
   - Each course of 2 hrs/ week (i.e., 30 hrs of lab) with 10 to 12 lab experiments/practicals/problem solving/exercises with 1 credit. Examination for 50 marks
   - Odd semesters lab/practical exams are internal only.
   - Even semesters lab/practical exams are externals.
   - Break-up of lab/practical exam:
     - Experiment/problem solving: 40 marks
     - Record/report submission: 5 marks
     - Viva/inter-active questioning in lab exam: 5 marks

3.4 Community service Project/ Internship/on the job training/Apprentice-ship: as per th APSCHE GUIDELINES

- 1st and 2nd year summer vacation: each break period work with 4 credits (100 marks each)

Assessment Component	Max Marks
1. Project Log	20
2. Project Implementation	30
3. Project Report	25
4. Presentation	25
TOTAL	100

- 5th / 6th semesters: 12 credits for 200 marks

Internal Assessment Component	**Max. Marks**
1. Project Log	10
2. Project Implementation	20
3. Project Report	10
4. Presentation	10
TOTAL	**50**
External Assessment Component	**Max. Marks**
Performance Assessment by the Evaluation Committee, converting the grades awarded by the industry, enterprise, etc.	**100**
External Viva Voce	**50**
GRAND TOTAL	**200**

4c Model Question papers for first or Second language

MODEL QUESTION PAPER
All UG program: first or Second Language course
Semester:
Paper:…..,Title of the paper

Time: 3 hours Max Marks: 75

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least TWO questions should be given from each unit)

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. from Unit I
(OR)
10. from Unit I

11. from Unit II
(OR)
12. from Unit II

13. from Unit III
(OR)
14. from Unit III

15. from Unit IV
(OR)
16. from Unit IV

17. from Unit V
(OR)
18. from Unit V

5cModel Question papers for Life/Skill development courses

MODEL QUESTION PAPER
All UG Life/Skill development courses
Semester:
Paper:…..,Title of the paper

Time: 1 hr.30 min. Max Marks: 50

SECTION – A

Answer any 4 questions. Each question carries 5 marks (4 X 5M = 20M)
(Total 8 questions and at least two questions should be given from each unit)

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

Answer all the questions. Each question carries 10 marks (3 X 10 = 30M)

9. from Unit I
(OR)
10. from Unit I

11. from Unit II
(OR)
12. from Unit II

13. from Unit III
(OR)
14. from Unit III

6cModel Question papers for Core/Skill enhancement courses

MODEL QUESTION PAPER
All UG program: Core courses
Semester: ……..
Paper:…..,Title of the paper

Time: 3 hours Max Marks: 75M

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least two questions should be given from each unit)

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. from Unit I
(OR)
10. from Unit I

11. from Unit II
(OR)
12. from Unit II

13. from Unit III
(OR)
14. from Unit III

15. from Unit IV
(OR)
16. from Unit IV

17. from Unit V
(OR)
18. from Unit V

UG PROGRAM (4 Year Honors)

2020-21

B.Sc/B.A/B.Com/BCA/BBM,etc
ENGLISH

Syllabus and Model Question Papers

DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./Week	Credits	Max.Marks Cont/ Internal/Mid Assessment	Max. Marks Sem-end Exam
I	1	A Course in Communication and Soft Skills	T	4	3	25	75
II	2	A Course in Reading &Writing Skills	T	4	3	25	75
III	3	A Course in Conventional Skills	T	4	3	25	75

UG(English)	Semester - I	Credits: 03
Course - 1	A Course In Communication And Soft Skills	Hrs/Week: 04

Learning Outcomes:

By the end of the course the learner will be able to :

- Use grammar effectively in writing and speaking.
- Demonstrate the use of good vocabulary
- Demonstrate an understating of writing skills
- Acquire ability to use Soft Skills in professional and daily life.
- Confidently use the tools of communication skills

UNIT I: Listening Skills

i. Importance of Listening
ii. Types of Listening
iii. Barriers to Listening
iv. Effective Listening

UNIT II: Speaking Skills

a. Sounds of English: Vowels and Consonants
b. Word Accent
c. Intonation

UNIT III: Grammar

a) Concord
b) Modals
c) Tenses (Present/Past/Future)
d) Articles
e) Prepositions
f) Question Tags
g) Sentence Transformation (Voice, Reported Speech & Degrees of Comparison)
h) Error Correction

UNIT IV: Writing

v. Punctuation
vi. Spelling
vii. Paragraph Writing

UNIT V: Soft Skills

a. SWOC
b. Attitude
c. Emotional Intelligence
d. Telephone Etiquette
e. Interpersonal Skills

UG(English)	Semester -II	Credits: 03
Course - 2	A Course In Reading & Writing Skills	Hrs/Week: 04

Learning Outcomes:
By the end of the course the learner will be able to :

- Use reading skills effectively
- Comprehend different texts
- Interpret different types of texts
- Analyse what is being read
- Build up a repository of active vocabulary
- Use good writing strategies
- Write well for any purpose
- Improve writing skills independently for future needs

UNIT I:

Prose : 1. How to Avoid Foolish Opinions Bertrand Russell
Skills : 2. Vocabulary: Conversion of Words
: 3. One Word Substitutes
: 4. Collocations

UNIT II:

Prose : 1. The Doll's House Katherine Mansfield
Poetry : 2. Ode to the West Wind P B Shelley
Non-Detailed Text : 3. Florence Nightingale Abrar Mohsin
Skills : 4. Skimming and Scanning

UNIT III:

Prose : 1. The Night Train at Deoli Ruskin Bond**Poetry** : 2. Upagupta Rabindranath Tagore
Skills : 3. Reading Comprehension
: 4. Note Making/Taking

UNIT IV

Poetry : 1. Coromandel Fishers Sarojini Naidu
Skills : 2. Expansion of Ideas
: 3. Notices, Agendas and Minutes

UNIT V:

Non-Detailed Text : 1. An Astrologer's Day R K Narayan
Skills : 2. Curriculum Vitae and Resume
: 3. Letters
: 4. E-Correspondence

UG(English)	Semester -III	Credits: 03
Course - 3	A Course In Conversational Skills	Hrs/Week: 04

Learning Outcomes

By the end of the course the learner will be able to :

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

UNIT I:

Speech : 1. Tryst with Destiny Jawaharlal Nehru
Skills : 2. Greetings
: 3. Introductions

UNIT II:

Speech : 1. Yes, We Can Barack Obama
Interview : 2. A Leader Should Know How to Manage Failure Dr.A.P.J.Abdul Kalam/ India Knowledge at Wharton
Skills : 3. Requests

UNIT III:

Interview : 1. Nelson Mandela's Interview With Larry King
Skills : 2. Asking and Giving Information
: 3. Agreeing and Disagreeing

UNIT IV:

Interview : 1. JRD Tata's Interview With T.N.Ninan
Skills : 2. Dialogue Building
: 3. Giving Instructions/Directions

UNIT V:

1. **Speech** : 1. You've Got to Find What You Love Steve Jobs
Skills : 2. Debates
: 3. Descriptions
: 4. Role Play

UG- BLUE PRINT (2020-21 onwards)

MODEL QUESTION PAPER

UG EXAMINATIONS

Semester: I

Course 1: A Course in Communication and Soft Skills

Time: 3 hours **Max Marks: 75**

SECTION – A

Answer any 5 questions. Each question carries 5 marks **(5 X 5M = 25M)**

1. What is the importance of listening?

2. Write a note on accent in the connected speech.

3. Fill in the blanks with suitable prepositions:

1. I came here_train.

2. John has been working in this office_____2005.

3. What is so great___the news.

4. The teacher explained____the students the value of time.

5. It is important to make a distinction_____prose and poetry.

4. Insert punctuation marks in the given sentence wherever necessarythere was a villager. he didnt know how to read and write

5. What is positive thinking and its advantages?

6. What are the barriers to effective listening?

7. B) Match the following sentences under Column "A" with their correct "Question Tags"under Column "B"

A		B
1. He is an engineer	[ ]	**a)** Are you?
2. We are Indians	[ ]	**b)** Will you?
3. She has been to London	[ ]	**c)** Isn't he?
4. You are not paying attentions	[ ]	**d)** hasn't she?
5. Don't waste your time	[ ]	**e)** Aren't we?

8. Write a note on Telephone etiquette

SECTION – B

Answer all the questions. Each question carries 10 marks **(5 X 10M = 50M)**

9. a)Write a note on the types of listening?

(OR)

b)List out various strategies we can adopt for effective listening?

10. a)Write an essay on sounds of English

(OR)

b)What is an intonation? Illustrate with suitable examples

11. a) A. Fill in the blanks in the following sentences with suitable Form of the Verb given in thebrackets.

a) Dolphins_(live) in water.

b) Srilatha____(work) in Hyderabad Publin School for the last ten years.

c) The train____(leave), when we reached the station yesterday.

d) The men_____(repair) the telephone cables. Do not disturb them.

e) Health_(be) wealth.

B. Correct the following sentences wherever necessary

a) I and Gopal went to the exhibition

b) The population of Chennai is greater than Hyderabad.

c) My uncle lives in United Kingdom

d) Being a hot day, the old man did not go out.

e) This book will not only be liked by men but also women

(OR)

b). Change the following sentences as instructed

i) Children like chocolates (Change the voice)

ii) Sasi is playing tennis (Change the voice)

iii) Krupa wrote a novel (Change the voice)

iv) Malli has bought a new car (Change the voice)

v) He said "I am busy now" (Change into indirect speech)

vi) She said to me "I will meet you tomorrow" (Change into indirect speech)

vii) He said, "Do you speak English?" (Change into indirect speech)

viii) Tea is as popular as coffee (Into Comparative Degree)

ix) Imaginary fear is more dangerous the real experience (Into Positive Degree)

x) Very few sights in nature are as beautiful as a rainbow (Into Superlative Degree)

12. a) What are the features of a good paragraph? Mention different types of paragraphs

(OR)

b)Correct the spelling in the following words

1) Tution 2) Commite 3) Athlet 4) Adventrous 5) Costli
6) Comunication 7) Planing 8) Reciept 9) Disire 10) Campain

13. a)Discus the importance of SWOT/SWOC analysis for individuals**.**

(OR)

b) What is emotional intelligence and its importance?

MODEL QUESTION PAPER

UG EXAMINATIONS

Semester: II

Course 2: A Course in Reading & Writing Skills

Time: 3 hours **Max Marks: 75**

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)

1. Write one word substitutes for the following
   1. The scientific study of skin diseases.
   2. One who collects stamps
   3. One who doesn't believe in the existence of God
   4. Speech given without any previous thought or preparation
   5. One who looks at the bright side of things

2. Write a note on skimming

3. Read the following paragraph and make notes on the topic and main ideas.

There are different forms of environmental pollution. Air pollution is caused by the burning of coal and oil. It can damage the earth's vegetation and cause respiratory problems in humans. A second type of pollution is noise pollution. It is the result of the noise of aircraft and heavy traffic. Further, loud music is also a cause of noise pollution, which has been seen to affect people's hearing and give them severe headaches and high blood pressure. Another source of pollution is radioactivity, which occurs when there is a leak from a nuclear power station. Radioactivity is a deadly pollutant, which kills and causes irreparable harm to those exposed to it. Land and water pollution is caused by the careless disposal of huge quantities of rubbish, sewage and chemical wastes. Pollution of rivers and seas kills fishes and other marine life and also becomes the cause of water-borne diseases. Land pollution, on the other hand, poisons the soil, making the food grown in it unfit for consumption.

4. Write a neat paragraph on 'Healthy Diet'

5. Write a note on E-Correspondence

6. Read the following passage and answer the questions that follow

The two dominant features of our age are science and democracy. They have come to stay. We cannot ask educated people to accept the deliverances of faith without rational evidence. Whatever we are called upon to accept must be justified and supported by reason. Otherwise our religious beliefs will be reduced to wishful thinking. Modern man must learn to live with a religion which commends itself to his intellectual and spiritual development of every human being irrespective of his caste, creed, community or race. Any religion which divides man from man or supports privileges, exploitation, wars, cannot commend itself to as today.

   a. In the passage it is said that democracy should…….
   b. The writer of the passage stresses the importance of…….
   c. What according to the writer is the role of religion in the present age?
   d. What according to the writer, a good religion should support…….
   e. Writer says that faith without___may not be accepted to the educated people.

7. Write a note on Florence Nightingale

8. Write a letter to the editor of a local newspaper, highlighting the sanitation problems of your area.

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. a).Bring out the message of the lesson "How to Avoid Foolish Opinions'.

(OR)

b).Write definition, meaning and types of collocations

10.a).What does Katherine Mansfield want to convey through the story 'The Doll's House?'

(OR)

b).Trace the evolution of thoughts in Shelley's "Ode to the West Wind"

11. a).Summarize the essay 'The Night Train at Deoli' by Ruskin bond

(OR)

b).Write central idea of the poem 'Upagupta'

12.a).Attempt a critical appreciation of the poem 'Coromandel Fishers'

(OR)

b).Write a note on Agendas and Minutes

13. a).Retell the story 'An Astrologer's Day' from the point of view of Guru Nayak

(OR)

b).A reputed cement factory requires a C.E.O. for their factory. Apply with a CurriculumVitae to the address given below. Rajahmundry Cement Factory, Danavaipet, Rajahmundry, E.G.dt.

UG PROGRAM (4 Year Honors)
2020-21

B.Sc / B.A/ B.Com
General HINDI

Syllabus and Model Question Papers

DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./Week	Credits	Max.Marks Cont/ Internal/Mid Assessment	Max. Marks Sem-end Exam
I	1	Prose, Short Stories, Grammar and Letter Writing	T	4	3	25	75
II	2	Prose, Short Stories, Grammar and Letter Writing	T	4	3	25	75
III	3	Old and Modern Poetry, History of Hindi Literature ,Essays (Translation and Functional Hindi)	T	4	3	25	75
IV	4	Old and Modern Poetry, History of Hindi Literature ,Essays (Translation and Functional Hindi)	T	4	3	25	75

UG(General HINDI)	Semester - I	Credits:03
Course :1	Prose, Short Stories, Grammar and Letter Writing	Hrs/Weeks:04

UNIT 1

गद्य संदेश (Prose)(सं. डा .वी. एल. नरसिंहम शिवकोटि)

1. साहित्य की महत्ता
2. मित्रता
3. पुथ्वीराज की ऑखें

UNIT 2

कथा लोक (Short Stories)(सं. डा. घनश्याम)

1. मुक्तिधन
2. गूदडसाई
3. उसने कहा था

UNIT 3

व्याकरण (Grammar)(सरल हिन्दी व्याकरण,. दक्षिण भारत हिन्दी प्रचार सभा,.मद्रास)

लिंग, वचन, काल, वाच्य।

UNIT 4

कार्यालयीन शब्दावली : अंग्रेजी से हिंदी और हिंदी से अंग्रजी

(Changing Administrative Terminology Hindi to English and English to Hindi)

UNIT 5

पत्र लेखन : वैयक्तिक पत्र(छुट्टी पत्र, पिता, मित्र के नाम पत्र, पुस्तक विकेता के नाम पत्र

**** **** ****

UG(General HINDI)	Semester - II	Credits:03
Course : 2	Prose, Short Stories, Grammar and Letter Writing	Hrs/Weeks:04

Unit 1

गद्य संदेश **(Prose)** (सं. डा.वी.एलण्णरसिंहम शिवकोटि)

1. बिंदा
2. भारत एक है
3. एच.आई.वी / एड्स

Unit 2

कथा लोक **(Short Stories)** (सं. डा. घनश्याम)

1. भूख हडताल
2. परमात्मा का कुत्ता
3. और वह पढ गई...

Unit 3

व्याकरण **(Grammar)** (सरल हिन्दी व्याकरण.. दक्षिण भारत हिन्दी प्रचार सभा..मद्रास)

संधि विच्छेद, वाक्यों की शुद्धि

Unit 4

कार्यालयीन हिंदी : पदनाम ... हिंदी से अंग्रेजी और अंग्रेजी से हिंदी

(Changing Administrative Terminology Hindi to English and English to Hindi)

Unit 5

पत्र लेखन : **(Letter Writing)**

नौकरी केलिए आवेदन पत्र

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UG(General HINDI)	Semester III	Credits:03
Course : 3	Old and Modern Poetry, History of Hindi Literature ,Essays (Translation and Functional Hindi)	Hrs/Weeks:04

Unit 1

1. काव्यदीप **(Ancient and Modern Poetry)** (सं.बी.राधाकृष्णमूर्ति)

साखी...1..10 दोहे

सूरदास...बाल वर्णन

मातृभूमि...मैथिलीशरण गुप्त

तोडती पत्थर...सूर्यकांत त्रिपाठी निराला

भारतमाता...सुमित्रानंदन पंत

Unit 2

2. हिंदी साहित्य का इतिहास **(History of Hindi Literature)** (डा. बाबू गुलाबराय)

हिंदी साहित्य का काल विभाजन (डा. रामचन्द्र शुक्ल)

भक्तिकाल की विशेषताएँ

ज्ञानाश्रयी शाखा ... कबीर

प्रेमाश्रयी शाखा ... जायसी

Unit 3

3. निबंध **(General Essays)**

1.समाचार पत्र 2.बेकारी समस्या

3.पर्यावरण और प्रदूषण 4. साहित्य और समाज

Unit 4

4. अनुवाद **(Translation)** अंग्रेजी से हिंदी **(Five Simple Sentences)**

Unit 5

5. प्रयोजनमूलक हिंदी **(Functional Hindi)**

राष्ट्रभाषा, राजभाषा, संपर्क भाषा

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UG(General HINDI)	Semester IV	Credits:03
Course : 4	Old and Modern Poetry, History of Hindi Literature ,Essays (Translation and Functional Hindi)	Hrs/Weeks:04

Unit 1

1. काव्यदीप **(Ancient and Modern Poetry)**(सं.बी.राधाकृष्णमूर्ति)

1.रहीम.....1..10 दोहे

2. मातृभाषा के प्रति...भारतेंदु हरश्चद्र

3. गीत फरोश...भवानी प्रसाद मिश्र

4.ढूँठ ... आलूरि बैरागी चौधरी

5. मादा भ्रूण...रजनी तिलक

Unit 2

2. हिंदी साहित्य का इतिहास **(History of Hindi Literature)**(डा. बाबू गुलाबराय)

भक्तिकाल .... स्वर्णयुग

रामभक्ति शखा....तुलसीदास

कृष्णभक्ति शाखा... सूरदास

Unit 3

3. साधारण निबंध **(General Essays)**

1.कंप्यूटर 2.विद्यार्थी और राजनीति

3.विज्ञान से हानि लाभ 4. समाज में नारी का स्थान

Unit 4

4. अनुवाद **(Translation)** तेलुगु से हिंदी **(Five Simple Sentences)**

Unit 5

5. प्रयोजनमूलक हिंदी **(Functional Hindi)**

ज्ञापन, परिपत्र, सूचना

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I B.A, B.Com,B.Sc

Part—I (ii) Hindi Paper I

I Semester Model Question Paper

w.e.f. Admitted Batch 2020—21

(CBCS PATTERN)

Time :3 Hours **Maximum Marks: 75**

Part: A

I. निम्न लिखित में से किन्ही पाँच प्रश्नों का उत्तर दीजिए। 5x5=25

1.लाला दाउ दयाल का चरित्र चित्रण कीजिए ?

2. साहित्य की जीवन मे क्या आवश्यकता है ?

3.लछना सिंह का चरित्र.चित्रण कीजिए ?

4. सत्संगति के महत्व पर अपने विचार प्रकट कीजिए ?

5. मुक्तिधन कहानी के शीर्षक की सार्थकता पर प्रकाश डालिए ?

6. 'गूदड साईं' कहानी का उद्देश्य क्या है ?

7. पृथ्वीराज का चरित्र चित्रण कीजिए ?

8. मित्र बनाते समय किन..किन बातों का ध्यान रखना चाहिए ?

Part: B

II. निम्न लिखित सभी प्रश्नों का उत्तर दीजिए। ***5x10=50***

1. मित्रता निबंध पर प्रकाश डालिए ?

अथवा

'पृथ्वीराज की आँखें' एकांकी का सारांश लिखिए ?

2. 'उसने कहा था' कहानी का सारांश लिखिए ?

अथवा

'मुक्तिधन ' कहानी की विशेषता क्या है ?

3. पाँच दिन की छुट्टी माँगते हुए अपने कालेज प्रधानाचार्य के नाम एक पत्र लिखिए।

अथवा

विहार यात्रा पर जाने की अनुमति माँगते हुए अपने पिताजी के नाम एक पत्र लिखिए।

4. सूचना के अनुसार बदलिए। 5x2=10

i) मोर नाचता है। (रेखांकित शब्द का लिंग बदलकर पूरा वाक्य लिखिए।)

ii) कक्षा मे लडकी बैठी है। (रेखांकित शब्द का वचन बदलकर पूरा वाक्य लिखिए।)

iii) सीता पुस्तक पढती है। (भविष्यत काल में बदलिए।)

iv) कृष्ण ने कंस को मारा । (वाच्य बदलिए)

v) मोहन दूध पीता है। (भूतकाल में बदलिए)

5. अ.) किन्ही पाँच पारिभाषिक शब्दों को हिंदी मे अनुवाद कीजिए । 5x1=5

a) Absence b) Assembly c) circular d) Grant e) Order
f) Duly g) Deduction h) Passport

आ.) किन्ही पाँच पारिभाषिक शब्दों को अंग्रेजी में अनुवाद कीजिए। 5x1=5

i) आरोप पत्र ii) गोपनीय iii) प्रशासन iv) स्वच्छ प्रति

v) मुख्यालय vi) पावती vii) आवास viii) सत्ता

I B.A, B.Com,B.Sc

Part—I (ii) Hindi Paper I

II Semester Model Question Paper

w.e.f. Admitted Batch 2020—21

(CBCS PATTERN)

Time :3 Hours **Maximum Marks: 75**

Part: A

I. निम्न लिखित में से पाँच प्रश्नों का उत्तर दीजिए। 5x5=25

1. भारत में भाषा भेद की समस्या का परिचय दीजिए ?
2. भारत की सबसे बडी विरासत क्या है ?
3. बिंदा रेखाचित्र में पंडिताइन चाची का परिचय दीजिए।
4. एच.आई.वी./ एड्स का संक्रमण कैसा होता है?
5. अधेड आदमी का चरित्र..चित्रण कीजिए।
6. भूख हडताल कहानी का उद्देश्य क्या है ?
7. एच.आई.वी./ एड्स के लक्षण क्या है ?
8. नारायण का चरित्र...चित्रण कीजिए ?

Part: B

II. निम्न लिखित में सभी प्रश्नों के उत्तर दीजिए। 5x10=50

1. बिंदा रेखाचित्र का सारांश लिखिए।

अथवा

'भारत एक है' निबंध का सारांश लिखिए।

2. 'परमात्मा का कुत्ता' कहानी का सारांश लिखिए।

अथवा

भूख हड़ताल कहानी का सारांश लिखिए।

3. अध्यापक की नौकरी केलिए आवेदन पत्र लिखिए।

अथवा

अनुवादक की नौकरी केलिए आवेदन पत्र लिखिए।

4. सूचना के अनुसार लिखिए।

अ. तीन शब्दों का संधि..विच्छेद कीजिए। 3x2=6

i) रामावतार ii) लघूर्मि iii) महेश

iv) परोपकार v) परमौषध vi) इत्यादि

आ. निम्न लिखि मे से दो वाक्यों को शुद्ध कीजिए। 2x2=4

i) राजु मुझसे कहा। ii) नीरजा ने पुस्तक लायी।

iii) शैलजा ने मुझसे बोली। iv) कल रमेश दिल्ली जाना होगा ।

5. अ.) पॉच कार्यालयीन शब्दों को हिंदी से अंग्रेजी में अनुवाद कीजिए। 5x1=5

i) अध्यक्ष ii) कुलपति iii) संयोजक iv) लेखा परीक्षक

v) रोकडिया vi) जिला प्रबंधक vii) महा प्रबंधक viii) राज्यपाल

आ.) पॉच कार्यालयीन शब्दों को अंग्रेजी से हिंदी में अनुवाद कीजिए। 5x1=5

a) Accountant b) Education Officer c)Camp Officer

d)Director e)Commissioner f) Chief Justice

g) Convener h) Forest Officer

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II B.A, B.Com,B.Sc

Part—I (ii) Hindi Paper II

III Semester Model Question Paper

w.e.f. Admitted Batch 2020—21

(CBCS PATTERN)

Time :3 Hours **Maximum Marks: 75**

Part: A

I. निम्न लिखित में से किन्ही पाँच प्रश्नों का उत्तर दीजिए। 5x5=25

1. जाति न पूछो साधु की पूछ लीजिए ज्ञान।

   मोल करो तलवार का पडी रहन दो म्यान (सप्रसंग व्याख्या कीजिए)

2. किलकत कान्ह घुटुरुवनि आवत।

   मनिमय कनक नंद कै आँगन, बिम्ब पकरिबैं धावत।। (सप्रसंग व्याख्या कीजिए)

3. संपर्क भाषा और राजभाषा में अंतर क्या है?

4. मैथिलीशरण गुप्त पर टिप्पणी लिखिए ?

5. सूरदास पर टिप्पणी लिखिए।

6. प्रेममार्गी शाखा पर टिप्पणी लिखिए।

7. राष्ट्रभाषा हिंदी का अर्थ स्पष्ट कीजिए।

8. पंत जी के प्रकृति चित्रण पर टिप्पणी लिखिए।

Part---B

II. निम्न लिखित सभी प्रश्नों का उत्तर दीजिए। **5x10=50**

1. तोडती पत्थर कविता का सारांश लिखिए।

   अथवा

   'भारत माता' कविता का सारांश लिखिए।

2. भक्तिकाल की विशेषताएँ क्या है?

   अथवा

   शुक्ल जी के अनुसार हिंदी साहित्य के काल विभाजन का परिचय दीजिए।

3. सूर्यकांत त्रिपाठी निराला का साहित्यिक परिचय दीजिए।

   अथवा

   सुमित्रानंदन पंत का साहित्यिक परिचय दीजिए।

4. 'पर्यावरण और प्रदूषण ' पर निबंध लिखिए।

   अथवा

   'बेकारी समस्या' पर निबंध लिखिए।

5. हिंदी में अनुवाद कीजिए। **5x2=10**

   i) Always Speak the Truth.

   ii) Please Sign here.

   iii) Try it once again.

   iv) She works at a Bank.

   v) I will be back at Ten o' clock.

II B.A, B.Com,B.Sc

Part—I (ii) Hindi Paper II

IV Semester Model Question Paper

w.e.f. Admitted Batch 2020—21

(CBCS PATTERN)

Time :3 Hours **Maximum Marks: 75**

Part: A

I. निम्न लिखित में से किन्ही पॉच प्रश्नों का उत्तर दीजिए। 5x5=25

1. खैर, खून, खाँसी, वैर, प्रीति, मद.पान।

   रहिमन दाबे ना दबे, जानत सकल जहान।। (सप्रसंग व्याख्या कीजिए)

2. निज भाषा उन्नति अहै, सब उन्नति को मूल।

   बिन निज भाषा ज्ञान के मिटत न हिस को सूल।। (सप्रसंग व्याख्या कीजिए)

3. रहीम पर टिप्पणी लिखिए।

4. मातृभाषा के प्रति भारतेन्दु हरिश्चन्द्र का क्या राय है?

5. आलूरि बैरागी पर टिप्पणी लिखिए।

6. रामभक्ति शाखा की विशेषताओं को स्पष्ट कीजिए।

7.सूचना की परिभषा लिखकर उदहरण प्रस्तुत कीजिए।

8. परिपत्र का प्रारूप तैयार कीजिए।

Part---B

II. निम्न लिखित सभी प्रश्नों का उत्तर दीजिए। 5x10=50

1. ठूँठ कविता का सारांश लिखिए। 1x10=10

   अथवा

   मादा भ्रूण कविता का सारांश लिखिए।

2. भक्तिकाल हिंदी साहित्य का स्वर्णयुग है... विवेचना कीजिए। 1x10=10

अथवा

ज्ञानाश्रयी शाखा में कबीर का स्थान निर्धारित कीजिए।

3. भारतेंदु हरिश्चंद्र का साहित्यिक परिचय दीजिए। 1x10=10

अथवा

भवानी प्रसाद मिश्र का साहित्यिक परिचय दीजिए।

4. विज्ञान से हानि या लाभ विषय पर निबंध लिखिए। 1x10=10

अथवा

कंप्यूटर पर निबंध लिखिए।

5. हिंदी में अनुवाद कीजिए। 5x2=10

i) India will become a Powerful country.

ii) Good books improve mental health.

iii) Work is worship.

iv) Give respect and take respect.

v) The Peacock is a beautiful bird.

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ADIKAVI NANNAYA UNIVERSITY :: RAJAMAHENDRAVARAM

B.A., B.Com., & B.Sc., etc., Programmes

Revised Syllabus under CBCS Pattern
w.e.f. 2020-21

Language Subjects - TELUGU
Revised Syllabus of
GENERAL TELUGU

బి.ఎ., బి.కాం., బి.యస్.సి., తదితర ప్రోగ్రాములు

సి.బి.సి.ఎస్.పద్ధతిలో సవరించబడిన పాఠ్యప్రణాళిక

2020-21 విద్యా సంవత్సరం నుంచి

జనరల్ తెలుగు - పాఠ్య ప్రణాళిక

Subject Curricular Framework

Sem	Course	Title	Hrs/Wk	Credits	Max. Marks IA	SE	Total
I	I	Pracheena Telugu Kavithvam	04	03	25	75	100
II	II	Aadhunika Telugu Sahithyam	04	03	25	75	100
III	III	Srujanaathmaka Rachana	04	03	25	75	100

పాఠ్యప్రణాళిక (3 కోర్సులు)

సెమి.	కోర్సు	శీర్షిక	పీరియడ్లు/వారానికి	క్రెడిట్లు	మొత్తం మార్కులు
I	I	ప్రాచీన తెలుగు కవిత్వం	04	03	25 75 100
II	II	ఆధునిక తెలుగు సాహిత్యం	04	03	25 75 100
III	III	సృజనాత్మక రచన	04	03	25 75 100

బి.ఏ., బి.కాం., బి.యస్‌సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్-1

కోర్సు-1 : ప్రాచీన తెలుగు కవిత్వం

యూనిట్ల సంఖ్య:5 పీరియడ్ల సంఖ్య:60

✦ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ప్రాచీన తెలుగుసాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తిస్తారు. తెలుగుసాహిత్యంలో ఆదికవి నన్నయ కాలంనాటి భాషాసంస్కృతులను, ఇతిహాసకాలం నాటి రాజనీతి విషయాలపట్ల పరిజ్ఞానాన్ని సంపాదించగలరు.

2. శివకవుల కాలంనాటి మతపరిస్థితులను, భాషావిశేషాలను గ్రహిస్తారు. తెలుగు నుడికారం, సామెతలు, లోకోక్తులు మొదలైన భాషాంశాల పట్ల పరిజ్ఞానాన్ని పొందగలరు.

3. తిక్కన భారతంనాటి మత, ధార్మిక పరిస్థితులను, తిక్కన కవితాశిల్పాన్ని, నాటకీయతను అవగాహన చేసుకోగలరు.

4. ఎఱ్ఱన సూక్తివైచిత్రిని, ఇతిహాస కవిత్వంలోని విభిన్న రీతులపట్ల అభిరుచిని పొందగలరు. శ్రీనాథుని కాలం నాటి కవితావిశేషాలను, మొల్ల కవితా విశిష్టతను గుర్తించగలరు.

5. తెలుగు పద్యం స్వరూప-స్వభావాలను, సాహిత్యాభిరుచిని పెంపొందించుకుంటారు. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషాసామర్థ్యాన్ని, రచనల మెళకువలను గ్రహించగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I

రాజనీతి – నన్నయ

మహాభారతం–సభాపర్వం–ప్రథమాశ్వాసం–(26–57 పద్యాలు)

యూనిట్–II

దక్షయజ్ఞం – నన్నెచోడుడు

కుమారసంభవం–ద్వితీయాశ్వాసం–(49–86 పద్యాలు)

యూనిట్–III

ధౌమ్య ధర్మోపదేశము – తిక్కన

మహాభారతం–విరాటపర్వం–ప్రథమాశ్వాసం–(116–146) పద్యాలు

యూనిట్–IV

పలనాటి బెబ్బులి – శ్రీనాథుడు (పలనాటి వీరచరిత్ర–ద్విపద కావ్యం పుట 108–112
'బాలచంద్రుడు భీమంబగు సంగ్రామం బొనర్చుట.. (108)..
..... వెఱగంది కుంది' (112) సం. అక్కిరాజు ఉమాకాంతం
ముద్రణ.వి.కె.స్వామి, బెజవాడ 1911.

యూనిట్–V

సీతారావణ సంవాదం – మొల్ల

రామాయణము–సుందరకాండము–(40–87 పద్యాలు)

✦వ్యాకరణం

సంధులు: ఉత్వ, త్రిక, ద్రుతప్రకృతిక, నుగాగమ,ద్విరుక్తటకారాదేశ, యణాదేశ, వృద్ధి, శ్చుత్వ, జశ్త్వ, అనునాసిక సంధులు.

సమాసాలు: అవ్యయీభావ, తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి.

అలంకారాలుః

అర్థాలంకారాలు ः ఉపమ, ఉత్ప్రేక్ష, రూపక, స్వభావోక్తి, అర్థాంతరవ్యాస, అతిశయోక్తి.

శబ్దాలంకారాలు ः అనుప్రాస (వృత్యనుప్రాస, ఛేకానుప్రాస లాటానుప్రాస, అంత్యానుప్రాస)

ఛందస్సు

వృత్తాలు: ఉత్పలమాల, చంపకమాల, శార్దూలము, మత్తేభము;

జాతులు : కందం, ద్విపద; ఉపజాతులు : ఆటవెలది, తేటగీతి, సీసం మరియు ముత్యాలసరాలు

ఆధార గ్రంథాలు:

1. శ్రీమదాంధ్ర మహాభారతము : సభాపర్వము–తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
2. శ్రీమదాంధ్ర మహాభారతము : విరాటపర్వము–తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
3. కుమార సంభవం – నన్నెచోడుడు
4. పలనాటి వీరచరిత్ర – శ్రీనాథుడు
5. రామాయణము – మొల్ల

✦ **సూచించబడిన సహపాఠ్య కార్యక్రమాలు:**

1. నన్నయ్య, తిక్కన, ఎఱ్ఱన మొదలైన ప్రసిద్ధ కవుల పాఠ్యాంశేతర పద్యాలను ఇచ్చి, విద్యార్థులచేత సమీక్షలు రాయించడం; ఆయా పద్యాల్లోని యతిప్రాసాది ఛందోవిశేషాలను గుర్తింపజేయడం.
2. విద్యార్థులచేత పాఠ్యాంశాలకు సంబంధించిన వ్యాసాలు రాయించడం (సెమినార్/అసైన్‌మెంట్)
3. ప్రాచీన పాఠ్యాంశాలలోని సమకాలీనతను గూర్చిన బృంద చర్చ, ప్రాచీన సాహిత్యాన్ని నేటి సామాజిక దృష్టితో పునర్మూల్యాంకనం చేయించడం.
4. చారిత్రిక, సాంస్కృతిక అంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.
5. వ్యక్తిగత/బృంద ప్రాజెక్టులు చేయించడం. ప్రశ్నాపత్ర నిర్మాతలకు సూచనలు ప్రతిపదార్థ పద్యాలు, కంఠస్థ పద్యాలు "రాజనీతి, దక్షయజ్ఞం, ధౌమ్య ధర్మోపదేశం, సీతారావణ సంవాదం" అనే నాలుగు పాఠ్యాంశాల నుండి మాత్రమే ఇవ్వాలి.

ప్రశ్నాపత్ర నమూనా

అ. ప్రతిపదార్థ పద్యాలు–(అంతర్గత ఛాయిస్)	(2–1)	1×8=8 మా
ఆ. కంఠస్థ పద్యం–(అంతర్గత ఛాయిస్)	(2–1)	1×3=3 మా
ఇ. సందర్భ వాక్యాలు–	(6–4)	4×3=12 మా
ఈ. సంగ్రహ సమాధాన ప్రశ్నలు	(6–4)	4×3=12 మా
ఉ. వ్యాస ప్రశ్నలు (అంతర్గత ఛాయిస్)	(6–3)	3×8=24 మా
ఊ. వ్యాకరణం–సంధులు	(6–4)	4×1=4 మా
సమాసాలు	(6–4)	4×1=4 మా
అలంకారాలు	(2–1)	1×4=4 మా
ఛందస్సు	(2–1)	1×4=4 మా

బి.ఏ., బి.కాం., బి.యస్‌సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్–2

కోర్సు–2 : ఆధునిక తెలుగు సాహిత్యం

యూనిట్ల సంఖ్య:5 **పీరియడ్ల సంఖ్య:60**

✦ **అభ్యసన ఫలితాలు:–**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ఆంగ్లభాష ప్రభావం కారణంగా తెలుగులో వచ్చిన ఆధునిక సాహిత్యాన్ని, దాని విశిష్టతను గుర్తిస్తారు.

2. సమకాలీన ఆధునిక సాహిత్య ప్రక్రియలైన "వచన కవిత్వం, కథ, నవల, నాటకం, విమర్శ"లపై అవగాహన పొందుతారు.

3. భావకవిత, అభ్యుదయ కవితాలక్ష్యాలను గూర్చిన జ్ఞానాన్ని పొందుతారు.అస్తిత్వవాద ఉద్యమాలపుట్టుకను, ఆవశ్యకతను గుర్తిస్తారు.

4. కథాసాహిత్యం ద్వారా సామాజిక చైతన్యాన్ని పొందుతారు. సిద్ధాంతాల ద్వారా కాకుండా, వాస్తవ పరిస్థితులను తెలుసుకోవడం ద్వారా సిద్ధాంతాన్ని సమీక్షించగలరు.

5. ఆధునిక తెలుగు కల్పనాసాహిత్యం ద్వారా సామాజిక, సాంస్కృతిక,రాజకీయ చైతన్యాన్ని పొందుతారు.

పాఠ్య ప్రణాళిక

యూనిట్–I : ఆధునిక కవిత్వం

1. ఆధునిక కవిత్వం– పరిచయం
2. కొండవీడు – దువ్వూరి రామిరెడ్డి
   ('కవికోకిల' గ్రంథావళి–ఖండకావ్యాలు–నక్షత్రమాల సంపుటి నుండి)
3. మాతృసంగీతం – అనిసెట్టి సుబ్బారావు ('అగ్నివీణ' కవితాసంపుటి నుండి)
4. 'తాతకో నూలుపోగు' – బండారు ప్రసాదమూర్తి ('కలనేత' కవితాసంపుటి నుండి)

యూనిట్–II : కథానిక

5. తెలుగు కథానిక – పరిచయం
6. భయం (కథ) – కాళీపట్నం రామారావు
7. స్వేదం ఖరీదు....? – (కథ) – రెంటాల నాగేశ్వరరావు

యూనిట్–III : నవల

8. తెలుగు 'నవల' – పరిచయం
9. రథచక్రాలు (నవల) – మహీధర రామ్మోహన రావు (సంక్షిప్త ఇతివృత్తం మాత్రం)
10. రథచక్రాలు (సమీక్షా వ్యాసం) – డా॥ యల్లాప్రగడ మల్లికార్జునరావు

యూనిట్–IV: నాటకం

11. తెలుగు 'నాటకం' – పరిచయం
12. యక్షగానము (నాటిక) – ఎం.వి.ఎస్. హరనాథరావు.
13. "అపురూప కళారూపాల విధ్వంసదృశ్యం 'యక్షగానము' (సమీక్షా వ్యాసం)"
    –డా॥కందిమళ్ళసాంబశివరావు

యూనిట్–V: విమర్శ

14. తెలుగు సాహిత్య విమర్శ – పరిచయం
15. విమర్శ–స్వరూప స్వభావాలు; ఉత్తమ విమర్శకుడు–లక్షణాలు

ఆధార గ్రంథాలు/వ్యాసాలు:

1. ఆధునిక కవిత్వం–పరిచయం : చూ. 'దృక్పథాలు' పుట 1–22, ఆచార్య ఎస్వీ. సత్యనారాయణ
2. తెలుగు కథానిక–పరిచయం : చూ. మన నవలలు–మన కథానికలు, పుట 118–130, ఆచార్య రాచపాళెం చంద్రశేఖర రెడ్డి
3. తెలుగు నవల–పరిచయం : చూ. నవలాశిల్పం, పుట 1–17, వల్లంపాటి వెంకటసుబ్బయ్య
4. తెలుగు నాటకం–పరిచయం : చూ. తెలుగు నాటకరంగం, పుట 17–25 ఆచార్య ఎస్.గంగప్ప
5. తెలుగుసాహిత్య విమర్శ–పరిచయం: చూ.తెలుగుసాహిత్య విమర్శ–నాడు,నేడు పుట 213–217 తెలుగువాణి, అయిదవ అఖిలభారత తెలుగు మహాసభల ప్రత్యేక సంచిక ఆచార్య జి.వి.సుబ్రహ్మణ్యం
6. నూరేళ్ళ తెలుగు నాటక రంగం – ఆచార్య మొదలి నాగభూషణశర్మ
7. నాటకశిల్పం – ఆచార్య మొదలి నాగభూషణశర్మ
8. సాంఘిక నవల–కథన శిల్పం – ఆచార్య సి.మృణాళిని.

✦ **సూచించబడిన సహపాఠ్య కార్యక్రమాలు:**

1. ఆధునిక కవిత్వానికి సంబంధించిన కొత్త కవితలను/అంశాలను ఇచ్చి, విద్యార్థులచేత వాటిమీద అసైన్‌మెంట్లు రాయించడం
2. పాఠ్యాంశాలకు సంబంధించిన విషయాలపై వ్యాసాలు రాయించడం (సెమినార్/అసైన్‌మెంట్)
3. తెలుగు సాహిత్యంలోని ప్రసిద్ధ కథలపై, కవితలపై సమీక్షలు రాయించడం.
4. ఆధునిక పద్యనిర్మాణ రచన చేయించడం.
5. విద్యార్థులను బృందాలుగా విభజించి, నాటకలపై/నవలలపై సమీక్షలు రాయించడం.
6. సాహిత్యవ్యాసాలు సేకరించడం, బృందచర్చ నిర్వహించడం, క్షేత్రపర్యటనలు.
7. ప్రసిద్ధుల విమర్శావ్యాసాలు చదివించి, వాటిని విద్యార్థుల సొంత మాటల్లో రాయించడం.
8. పాఠ్యాంశాలపై స్వీయ విమర్శావ్యాసాలు రాయించడం.

✦ప్రశ్నాపత్ర నమూనా ✦

అ–విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు – ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ–విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు–ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

బి.ఏ., బి.కాం., బి.యస్‌సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్-3

కోర్సు-3 : సృజనాత్మక రచన

యూనిట్ల సంఖ్య:5 **పీరియడ్ల సంఖ్య:60**

✦ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. తెలుగు సాహిత్య అభ్యసన ద్వారా నేర్చుకున్న నైపుణ్యాలను, సృజనాత్మక నైపుణ్యాలుగా మార్చుకోగలరు.
2. విద్యార్థులు భాషాతత్వాన్ని, భాష యొక్క ఆవశ్యకతను, భాష యొక్క ప్రాధాన్యాన్ని గుర్తిస్తారు. మనిషి వ్యక్తిగత జీవనానికి, సామాజికవ్యవస్థ పటిష్టతకు భాష ప్రధానమని తెలుసుకుంటారు. తెలుగుభాషలోని కీలకాంశాలైన 'వర్ణం-పదం-వాక్యా'ల ప్రాధాన్యాన్ని గుర్తిస్తూ, వాగ్రూప- లిఖితరూప వ్యక్తీకరణ ద్వారా భాషానైపుణ్యాలను మెరుగుపరచుకోగలరు.
3. భాషానైపుణ్యాలను అలవరచుకోవడంతోపాటు వినియోగించడం నేర్చుకుంటారు. రచనా, భాషణానైపుణ్యాలను సృజనాత్మక రూపంలో వ్యక్తీకరించగలరు.
4. ప్రాచీన పద్యరచనతో పాటు ఆధునిక కవిత, కథ, వ్యాసం, మొదలైన సాహిత్యప్రక్రియల నిర్మాణాలకు సంబంధించిన సిద్ధాంతవిషయాలను నేర్వడంతో పాటు వారిలో రచనా నైపుణ్యాలను పెంపొందించుకోగలరు.
5. సృజన రంగం, ప్రసారమాధ్యమ రంగాల్లో ఉపాధి అవకాశాలను అందిపుచ్చుకోగలరు.
6. అనువాద రంగంలో నైపుణ్యం సంపాదించగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I: వ్యక్తీకరణ నైపుణ్యాలు

1. భాష–ప్రాథమికాంశాలు: భాష–నిర్వచనం, లక్షణాలు, ఆవశ్యకత, ప్రయోజనాలు
2. వర్ణం–పదం–వాక్యం', వాక్య లక్షణాలు, సామాన్య–సంయుక్త–సంశ్లిష్టవాక్యాలు
3. భాషా నిర్మాణంలో 'వర్ణం–పదం–వాక్యం' ప్రాధాన్యత

యూనిట్–II సృజనాత్మక రచన

4. కవితా రచన : ఉత్తమ కవిత – లక్షణాలు
5. కథారచన : ఉత్తమ కథ – లక్షణాలు
6. వ్యాస రచన : ఉత్తమ వ్యాసం–లక్షణాలు

యూనిట్–III: అనువాద రచన

7. అనువాదం–నిర్వచనం, అనువాద పద్ధతులు,
8. అనువాద సమస్యలు–భౌగోళిక,భాషా,సాంస్కృతిక సమస్యలు, పరిష్కారాలు
9. అభ్యాసము : ఆంగ్లం నుండి తెలుగుకు,తెలుగు నుండి ఆంగ్లానికి ఒక పేరానుఅనువదించడం

యూనిట్ IV మాధ్యమాలకు రచన–1 (ముద్రణామాధ్యమం/ప్రింట్ మీడియా)

10. ముద్రణామాధ్యమం (అచ్చుమాధ్యమం) : పరిచయం, పరిధి, వికాసం
11. వివిధ రకాల పత్రికలు–పరిశీలన, పత్రికాభాష, శైలి, వైవిధ్యం
12. పత్రికా రచన : వార్తా రచన, సంపాదకీయాలు, సమీక్షలు–అవగాహన

యూనిట్ V మాధ్యమాలకు రచన–2 (ప్రసార మాధ్యమం/ఎలక్ట్రానిక్ మీడియా)

13. ప్రసారమాధ్యమాలు : నిర్వచనం, రకాలు, విస్తృతి, ప్రయోజనాలు
14. శ్రవణ మాధ్యమాలు – రచన: రేడియో రచన, ప్రసంగాలు, నాటికలు, ప్రసార సమాచారం
15. దృశ్యమాధ్యమాలు – రచన: వ్యాఖ్యానం (యాంకరింగ్), టెలివిజన్ రచన

ఆధార గ్రంథాలు/వ్యాసాలు:

1. వ్యక్తీకరణ నైపుణ్యాలు – చూ. 1. ఆధునిక భాషాశాస్త్ర సిద్ధాంతాలు–ఆచార్య పి.ఎస్.సుబ్రహ్మణ్యం
   2. తెలుగు భాషా చరిత్ర – సం.ఆచార్య భద్రిరాజు కృష్ణమూర్తి
   3. తెలుగు వాక్యం – డా. చేకూరి రామారావు
2. ఉత్తమ కవిత–లక్షణాలు – చూ. నవ్యకవిత్వ లక్షణములు– ఆచార్య సి.నారాయణరెడ్డి
   ఆధునికాంధ్ర కవిత్వము–సంప్రదాయములు, ప్రయోగములు: చతుర్థ ప్రకరణము.
3. ఉత్తమ కథ–లక్షణాలు – చూ.కథాశిల్పం–వల్లంపాటి వెంకటసుబ్బయ్య, పుటలు 11–17
4. ఉత్తమ వ్యాసం–లక్షణాలు– చూ.చదువు–సంస్కృతి (వ్యాసం) – కొడవటిగంటి కుటుంబరావు
5. అనువాద రచన – చూ.1. అనువాద సమస్యలు – రాచమల్లు రామచంద్రారెడ్డి
   పుటలు 61–75, 85–94
   2. అనువాదన పద్ధతులు ఆచరణ సమస్యలు–చేకూరి రామారావు
   "భాషాంతరంగం", పుటలు 130–146, తెలుగు విశ్వవిద్యాలయం ప్రచురణ
6. ముద్రణా మాధ్యమం – చూ. మాధ్యమాలకు రచన, పుటలు 9–12
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
7. పత్రికా భాష – చూ. మాధ్యమాలకు రచన, పుటలు 67–74
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
8. పత్రికా రచన – చూ. తెలుగు– మౌలికాంశాలు, పుటలు 59–69
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
9. ప్రసార మాధ్యమాలు – చూ. మాధ్యమాలకు రచన, పుటలు 3-10
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
10. రేడియో రచన – చూ.మాధ్యమాలకు రచన, పుటలు 141-148
    – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
11. వ్యాఖ్యానం (యాంకరింగ్) – చూ.మాధ్యమాలకు రచన, పుటలు 178-181
    – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
12. టెలివిజన్ రచన – చూ.మాధ్యమాలకు రచన, పుటలు 153-160
    – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
13. తెలుగు జర్నలిజం – డా॥ బూదరాజు రాధాకృష్ణ

సూచించబడిన సహపాఠ్య కార్యక్రమాలు

1. భాషాంశాలపై, వాక్య నిర్మాణంపై అసైన్‌మెంట్లు రాయించడం, పత్రికల్లోని సాహిత్య/భాషాంశాలను సేకరింపజేయడం.
2. విద్యార్థులచేత తెలుగుభాషా సాహిత్యాలపై ప్రసంగవ్యాసం ఇప్పించడం (సెమినార్/ అసైన్‌మెంట్)
3. వ్యాసరచన, లేఖారచన, స్వీయకవితలు రాయించి, తరగతిలో చదివింపచేయడం మొదలైనవి.
4. వివిధ కార్యక్రమాల్లో విద్యార్థులచేత సదస్సు నిర్వహణ, వ్యాఖ్యానం (యాంకరింగ్) చేయించడం.
5. సమకాలీన భాషాసమస్యలపై / ఉద్యమాలపై/సాంఘిక సమస్యలపై 'బృందచర్చ' (Group Discussion) నిర్వహింపచేయడం.
6. తెలుగుభాషా దినోత్సవం/అంతర్జాతీయ మాతృభాషా దినోత్సవం మొదలైన రోజుల్లో జరిగే సాంస్కృతిక కార్యక్రమాలు విద్యార్థులచేత నిర్వహింపజేయడం, వాటిపై సమీక్షలు/పత్రికా ప్రకటనలు రాయించడం.
7. సమకాలీన సంఘటనలపై సామాజిక మాధ్యమాల్లో/ టి.వి.ల్లో జరిగే చర్చలను నమోదు చేయించి సంకలనం చేయడం.
8. సాంస్కృతిక / చారిత్రక ప్రాశస్త్యం కలిగిన కట్టడాలు , దేవాలయాలు, కళానిలయాలను 'బృందపర్యటన/ క్షేత్ర పర్యటన' ద్వారా విద్యార్థులచేత సందర్శింపజేయడం.

✦ప్రశ్నాపత్ర నమూనా ✦

అ-విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు – ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ-విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు-ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

ఆదికవి నన్నయ విశ్వవిద్యాలయం

జనరల్ తెలుగు

ప్రాచీన తెలుగు సాహిత్యం

మాదిరి ప్రశ్నా పత్రం

సెమిస్టర్-1 పేపర్ - 1

(బి.ఎ., బి.కాం., బి.ఎస్.సి., బి.బి.ఏ., బి.సి.ఏ.,)

సమయం: 3 గంటలు **మార్కులు:75**

సెక్షన్-ఎ

I. ఈ క్రింది పద్యాలలో ఒకదానికి ప్రతిపదార్థ తాత్పర్యాన్ని రాయండి. 8 మా

(అ) కడుఁజనువాఁడునై పురుషకారియు దక్షుఁడునైన మంత్రి పెం
పడంఁగ రాజపుత్రుల మహాధనవంతుల ఁజేసి వారితో
నొడఁబడి పక్ష మేర్పడఁగ నుండఁడుగా, ధనమెట్టి వారికిం
గడుకొని చేయకుండునె జగన్నుత! గర్వము దుర్విమోహమున్

(లేదా)

(ఆ) సంగరరంగమందు నతిశౌర్యమునన్ రఘురాముతోడ మా
తంగతురంగసద్భటశ తాంగబలంబుల(గూడి నీవు పో
రంగను నోప కిప్పుడు విరాధఖరాదుల పాటు (జూచియున్
దొంగిలినన్ను(దెచ్చితివి తుచ్ఛపు(బల్కులు పల్క(బాడియే.

II. ఈ క్రింది పద్యాలలో ఒక దానికి పాదభంగం లేకుండా పూరించండి. 1x3=3 మా

(అ) ఖురవదఘట్టనన్ ధరణి గ్రుంగ..... లోక భయంకరాకృతిన్

(లేదా)

(ఆ) ధరణిపు జక్క గట్టెదరు దక్కి..... నీతి కొల్వునన్

III. ఈ క్రింది వానిలో నాల్గింటికి సందర్భసహిత వ్యాఖ్యలు రాయండి. 4x3=12 మా

1. "తనువు లస్థిరములు ధనములుకల్ల"
2. "వానిననుష్ఠింతు (బ్రియముతోడ"
3. "ఎలుక మీది కోపమున నిల్లేర్చునట్లు"
4. పురుషార్థంబునకు హాని పుట్టుక యున్నే"
5. కీర్తి యొక్కటి భువి నిఖిలముగాకుండ"
6. "చెప్ప నేటికి నీవె చూచెదవు గాక"

IV. ఈ క్రింది వానిలో నాల్గింటికి సమాధానాలు రాయండి. 4x3=12 మా

1. దక్షుని యజ్ఞవాటిక భీతావహమైన వేళ, ఇంద్ర కుబేరుల స్థితి తెల్పండి?
2. రాజు కొలువులో ఉన్న ఉద్యోగులు గోప్యముగా ఉంచవలసిన అంశము లేవి?
3. నలగామ రాజు ఎందుకు కలత చెందను?
4. శ్రీనాథుని రచనలేవి?
5. త్రిజట స్వప్న వృత్తాంతాన్ని వివరించండి?
6. నారదుడు చెప్పిన పధ్నాలుగు రకాల రాజలక్షణాలను తెలపండి?

V. ఈ క్రింది వ్యాసరూప ప్రశ్నలలో మూడింటికి సమాధానాలు రాయండి.

1. (అ) రాజనీతి పాఠ్యభాగం ఆధారంగా నన్నయ కవితారీతులను వివరించండి? 1x8=8 మా

(లేదా)

(ఆ) దక్షయజ్ఞం పాఠ్యభాగ సారాంశాన్ని తెలియజేయండి?

2. (అ) ధౌమ్యుడు చేసిన ధర్మోపదేశాన్ని వివరించండి? 1x8=8 మా

(లేదా)

(ఆ) "పలనాటి బెబ్బులి" కథా సారాంశం వివరించండి?

3. (అ) "సీతా రావణ సంవాదం" పాఠ్యభాగం ఆధారంగా సీత రావణునితో పలికిన అంశాలను తెలియజేయండి? 1x8=8 మా

(లేదా)

(ఆ) శ్రీనాథుని కవితా రీతులను రాయండి?

సెక్షన్-బి

VI. ఈ క్రింది పదాలలో నాల్గింటిని విడదీసి సంధి పేరు రాయండి. 4x1=4 మా

(1) రాజాన్వయ (2)పక్షమేర్పడ (3)వీధిఁ జొచ్చె (4)కట్టెదుట (5) ఇంధనౌఘ (6) నరేంద్రోత్తమ

VII. ఈ క్రింది పదాల్లో నాల్గింటికి విగ్రహ వాక్యం రాసి,సమాసాల పేరు తెల్పండి.

(1) సహస్రాక్షుడు (2) తనయుల్లు (3) ఉత్తమాసనములు 4x1=4 మా

(4)మానావమానములు (5)శింశుపావృక్షము (6) అష్టాంగములు.

VIII ఈ క్రింది వానిలో ఒక దానికి లక్ష్యలక్షణ సమన్వయం చేయండి. 1x4=4 మా

(1) వృత్యానుప్రాసము (2) అర్థాంతరన్యాసము

IX. ఈ క్రింది వానిలో ఒకదానికి లక్షణాలు తెలిపి ఉదాహరణతో సమన్వయం చేయండి.

(1) మత్తేభం (2) కందం 1x4=4 మా

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ఆదికవి నన్నయ విశ్వవిద్యాలయం

జనరల్ తెలుగు

ఆధునిక తెలుగు సాహిత్యం

మాదిరి ప్రశ్నా పత్రం

సెమిస్టర్-2 పేపర్ -2

(బి.ఎ., బి.కాం., బి.ఎస్.సి., బి.బి.ఏ., బి.సి.ఏ.,)

సమయం: 3 గంటలు మార్కులు:75

అ-విభాగం

I. ఈ క్రింది ప్రశ్నల్లో ఐదింటికి సమాధానాలు రాయండి 5x5=25మా

1. కొండపీడు గొప్పతనాన్ని రాయండి?
2. అనిశెట్టి సుబ్బారావు రచనలేవి?
3. రెంటాల నాగేశ్వరరావు గారి జీవిత విశేషాలు రాయండి?
4. 'నవల' నిర్వచనం రాయండి?
5. 'రథచక్రాలు' గూర్చి సంక్షిప్త సమీక్ష రాయండి?
6. 'యక్షగానాల ప్రాముఖ్యతను వివరించండి?
7. 'కట్టమంచి రామలింగారెడ్డి విమర్శ స్థానాన్ని వివరించండి?
8. 'సి.నారాయణరెడ్డిని రచనలు పరిచయం చేయండి?

అ-విభాగం

II. ఈ క్రింది వానిలో అన్ని ప్రశ్నలకు సమాధానాలు రాయండి 5x10= 50 మా

9. (అ) అధునిక కవిత్వ ఆవిర్భావ వికాసాలను వివరించండి?

(లేదా)

(ఆ) తాతకో సూలు పోగు కవిత ప్రత్యేకతను వివరించండి?

10. (అ) తెలుగు కథానికను పరిచయం చేయండి.

(లేదా)

(ఆ) భయం కథలోని సారాంశం రాయండి?

11) (అ) సాహిత్య ప్రక్రియగా నవల స్థానాన్ని వివరించండి?

(లేదా)

(ఆ) "రథచక్రాలు" ఇతివృత్తాన్ని వివరించండి?

12)(అ) "తెలుగు కథానిక" పరిమాణాన్ని తెలియజేయండి?

(లేదా)

(ఆ) "యక్షగానం" ఆవిర్భావ వికాసాలను రాయండి?

13)(అ) తెలుగు సాహిత్య వివర్శను పరిచయం చేయండి?

(లేదా)

(ఆ) ఉత్తమ విమర్శకుని లక్షణాలను రాయండి.

ఆదికవి నన్నయ విశ్వవిద్యాలయం

జనరల్ తెలుగు

(బి.ఎ., బి.కాం., బి.ఎస్.సి., బి.బి.ఏ., బి.సి.ఏ.,)

సృజనాత్మక రచన

మాదిరి ప్రశ్నా పత్రం

సెమిస్టర్-3 పేపర్ - 3

సమయం: 3 గంటలు **మార్కులు: 75**

అ-విభాగం

1. ఈ క్రింది ప్రశ్నలలో ఐదింటికి సమాధానాలు రాయండి? 8 వ ప్రశ్నకు తప్పనిసరిగా సమాధానం రాయాలి?

1. భాషా ప్రయోజనాలు తెలియజేయండి? **5×5=25 మా**
2. వ్యాస లక్షణాలను వివరించండి?
3. సంక్లిష్ట వాక్యాల గురించి రాయండి?
4. టెలివిజన్ రచనా పద్ధతులను తెలియజేయండి?
5. ఉత్తమ సంపాదకుని లక్షణాలు తెలపండి?
6. అనువాదంలో తలయెత్తే సమస్యలను వివరించండి?
7. భద్రిరాజు కృష్ణమూర్తిగారి కృషిని వివరించండి?
8. **ఈ క్రింది అంశాన్ని తెలుగులోకి అనువదించండి**

The daily life of the students is a life of studies and discipline. During the student days, one has to be very active and busy. If the student neglect his studies, he would fail in his examinations. If he is not punctual to his classes, he would be looser to that effect. If the student fails to work hard regularly, he would lag behind his classmates.

ఆ-విభాగం

2. ఈ క్రింది వానిలో అన్ని ప్రశ్నలకు సమాధానాలు రాయండి **5×10= 50 మా**

9. భాషను నిర్వచించి వాటి లక్షణాలను వివరించండి?

(లేదా)

వాక్యాన్ని నిర్వచించి, భేదాలను తెలపండి?

10. ఉత్తమ కథా లక్షణాలను వివరించండి?

(లేదా)

ఉత్తమ కవిత లక్షణాలు రాయండి?

11. అనువాద పద్ధతులను గురించి తెలపండి?

(లేదా)

అనువాద నిర్వచనాలను రాసి, ఉత్తమ అనువాదాలను గురించి రాయండి?

12. ముద్రణ మాధ్యమాన్ని పరిచేయం చేస్తూ దాని పరిధి, వికాసాలను వివరించండి?

(లేదా)

పత్రిక రచనలను గూర్చి విశ్లేషణాత్మక వ్యాసం రాయండి?

13. ప్రసార మాధ్యామాల పరిధి, ప్రయోజనాలను రాయండి?

(లేదా)

దృశ్య మాధ్యమాలలో సమాచార సేకరణ (రిపోర్టింగ్) వ్యాఖ్యానం (యాంకరింగ్) గురించి రాయండి?

UG PROGRAM(4 Years Honors)

CBCS - 2020-21

SUBJECT
SANSKRIT

DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./Week	Credits	Max.Marks Cont/ Internal/Mid Assessment	Max. Marks Sem-end Exam
I	1	Poetry, Prose & Grammar	T	4	3	25	75
II	2	Poetry, Prose & Grammar.	T	4	3	25	75
III	3	Drama, Upanishad, Alankara And History of Literature.	T	4	3	25	75

UG Courses	Semester - I	Credits:03
Course: 1	Poetry, Prose & Grammar	Hrs/Weeks:04

UNIT – I OLD POETRY: 1. "**Arya Padukabhishekaha**",

Valmiki Ramayanam- Ayodhya Kanda, Sarga-100 Geetha Press, Gorakhpur.

2. " **YakshaPrasnaha**", Mahabharatam of Vedavyasa, Vanaparva, Adhyaya -313, Geeta Press, Gorakhpoor.

UNIT – II MODERN POETRY:1." **Mevada Rajyastapanam"** 4th Canto, Srimat Pratapa Ranayanam, Mahakavyam, Pt.Ogeti Parikshit sarma, Published by, Pt.Ogeti Parikshitsarma, 10/11, Sakal nagar, Pune, 1989.

2.**"VivekanandaSuktayaha**", Vivekanandasuktisudha by Dr.SamudralaLakshmanaiah, Published by Author, 18-1-84, Yasoda Nagar, Tirupati. Selected Slokas 25.

UNIT – III PROSE: 1. "**Atyutkataihi papapunyairihaiva phalamasnute**", Hitopadesaha-Mitralabha 2 & 3 stories, Pages 61-84.

2. " **Sudraka -Veeravarakatha''**, Hitopadesaha-Vigraham, 8th story, Pages 63-70,Chowkhamba krishadas academy,Varanasi, 2006.

UNIT - IV GRAMMAR:1.**DECLENSIONS**Nouns ending in vowels
Deva, Kavi, Bhanu, Dhatru, Pitru, Go, Ramaa, Mati.

2.CONJUGATIONS

1st Conjugation - Bhoo, Gam, Shtha, Drusir, Labh, Mud.

2nd Conjugation - As. 10th Conjugation – Bhaash.

UNIT – V GRAMMAR: 1. **SANDHI** - **Swara Sandhi** : Savarnadeergha, ayavayava, Guna,Vruddhi, yaanadesa.
-**Halsandh**i:Schutva, Stutva, Anunasika.2.**SAMASA**
Dwandwa, Tatpurusha, Karmadharaya,, Dwigu.

UG Courses	Semester - II	Credits:03
Course: 2	Poetry, Prose & Grammar	Hrs/Weeks:04

UNIT – I OLD POETRY:

1."**Indumateeswayamvaram**'', Raghuvamsam of kalidasa, 6th canto, Chowkhamba krishadas academy, Varanasi-2012.

2. "**Deekshaapradanam**'', Buddacharitam of Aswagosha, 16th canto. Selected verses.

UNIT – II MODERN POETRY:

1. "**Gangavataranam**'', Bhojas Champu Ramayanam, Balakanda.
2. "**Mohapanodaha**'', 4th cant. Dharma Souhrudam by P.Pattabhi Ramarao, , Published by Author, Ramanth Nagar.
3. "**VandeKasmeerabharatam**'', by Doolypala Ramakrishna from Samskrita pratibha, sahitya academy , New Delhi -2018.

UNIT – III PROSE:

1. "**Avantisundarikatha**'', 5th Chapter. Dasakumara Charitam, Purva peetika.
2. ''**Charudattacharitam**'', Bhasakathasaraha by Y.Mahalingasastry.

UNIT - IV GRAMMAR:

1. **DECLENSIONS** :Nouns ending in vowels
Nadee, Janu, vadhoo, Matru, Phala, Vaari & Madhu.
2. **CONJUGATIONS**
III Conjugation- Yudh, IV Conjugation- Ish, VIII Conjugation- Likh, Kru, IX Conjugation-Kreen X, Conjugation-Kath, Ram, Vand.

UNIT – V GRAMMAR:

1. **SANDHI** - Halsandhi : Latva, Jastva
-Visarga sandhi: Utva, Visargalopa, Rephadesa, Ooshma.

2.**SAMASA**
Avyayeebhava, Bahruvrihi.

UG Courses	Semester - III	Credits:03
Course: 3	Drama, Upanishad, Alankara and History of Literature.	Hrs/Weeks:04

UNIT – I : OLD DRAMA

1.''**Madhyamavyayogaha**''. Bhasa Natakachakram.
krishadas academy, Varanasi 1998.

UNIT – II :MODERN DRAMA

''Sankalpabalam'' by Prof.G.S.R.Krishna Murthy,
Published by Semushi, R.S.Vidyapeetam, Tirupati-2019.

UNIT – III :UPANISHAD

1.''**Sishyanusasanam**'' – Sikshavalli of Taittireeyopanishad.

2. **''Sraddatrayavibhagayoga''**,

17th Chapter, Bhagavadgita, Geetapress, Gorakhpoor.

UNIT - IV : 1. ALANKARAS:

1. Upama 2. Ananvaya 3. Utpreksha 4. Deepakam

5. Aprastutaprasamsa 6.Drushtanta 7. Prateepa.

2. HISTORY OF SANSKRIT LITERATURE

1. Panini 2.Kautilya 3.Bharatamuni 4. Bharavi 5.Magha

6.Bhavabhuti 7. Sankaracharya, 8.Jagannatha. 9. Dandi.

UNIT – V : HALANTA SABDAS

1.Jalamuch 2.Vaach 3.Marut 4.Bhagavat 5.Bhavat

6.Pachats 7. Naman 8.Rajan 9.Gunin 10.Vidwas 11. Manas.

CBCS SEMESTER WISE SYLLABUS

PART 1 (B) SUBJECT :SANSKRIT

SAMESTER -1

PAPER -1:POETRY ,PROSE,&GRAMMAR.(W.e.f. 2020 -2021)

QUESTION PAPER PATTERN

TIME 3 HRS MARKS 75

Section –A (5x5=25MARKS)

Answer any five of the following.

1. श्लोकपूरणं तथा भावं च । one poem from

   Arya Padukabhishekaha 1 unit 1 lesson

2. श्लोकपूरणं तथा भावं च । one poem from

   Yakshaprasnaha 1 unit 2 nd lesson

3. सविभक्तिकं सम्पूर्णतया शब्द रूपाणि । one sabhda

   Unit 1v पुंलिंग शब्दाः

4. सविभक्तिकं सम्पूर्णतया शब्द रूपाणि । one sabhda

   Unit 1v स्त्रीलिंग शब्दाः

5. व्दयोः निर्दिष्ट लकारयोः सर्वाणि धातुरूपाणि

   Unit 1v conjugations

6. सन्धत्त । 5x1=5

Unit V

7. विधटयत । 5x1=5

Unit V

8. नामनिर्देशपूर्वकंविग्रहवाक्यानि लिखत । 5x1=5

Unit V samasaha

SECTION-B

Answer any five of the following. 5x10=50MARKS

9. Essay Questions from old poetry प्राचीन साहित्यं unit -1 Arya Padukabhishekaha& Yakshaprasnaha (essays each one from each lesson) 1x10=10marks (1 out of 2)

10. Essay Questions two from Modernpoetry unit- 2 - only vivekananda suktayaha 2nd lesson.
One question should be answer A Or B 1x10=10marks (1 out of 2)

11. Essay Questions from prose unit- 3 Atyutkataihi papapunyairihaiva phalamasnute & Sudraka -veeravarakatha.
One question should be answer A Or B 1x10=10marks (1 out of 2)

12. Annotations two from old poetry lesson -2 Yaksh prasnaha& two from Modernpoetry unit- 2 - only vivekananda suktayaha. 5x2=10marks (2 out of 4)

13. Annotations two from prose lesson -1 Atyutkatihi papapunyairihaiva phalamasnute two from Sudraka -veeravarakatha. 5x2=10marks (2 out of 4)

CBCS SEMESTER WISE SYLLABUS

PART 1 (B) SUBJECT :SANSKRIT

SAMESTER -2

PAPER -1:POETRY ,PROSE,&GRAMMAR.(W.e.f. 2020 -2021)

QUESTION PAPER PATTERN

TIME 3 HRS MARKS 75

Section –A (5x5=25MARKS)

Answer any five of the following.

1. श्लोकपूरणं तथा भावं च । one poem from

   Indumateeswayamvaram 1 unit 1 lesson

2. श्लोकपूरणं तथा भावं च । one poem from

   Deekshaapradanan 1 unit 2 nd lesson

3. सविभक्तिकं सम्पूर्णतया शब्द रूपाणि । one sabhda

   Unit 1v स्त्रीलिंग शब्दाः

4. सविभक्तिकं सम्पूर्णतया शब्द रूपाणि । one sabhda

   Unit 1v नपुंसकलिंग शब्दाः

5. व्दयोः निर्दिष्ट लकारयोः सर्वाणि धातुरूपाणि

   Unit IV conjugations

6. सन्धत्त । 5x1=5

Unit V

7. विघटयत । 5x1=5

Unit V

8. नामनिर्देशपूर्वकंविग्रहवाक्यानि लिखत । 5x1=5

Unit V samasaha

SECTION-B

Answer any five of the following. 5x10=50MARKS

9. Essay Questions from old poetry प्राचीन साहित्यं unit -1
Indumateeswayamvaram& Deekshaapradanan (essays each one from each lesson) 1x10=10marks (1 out of 2)

10. Essay Questions two from Modernpoetry unit- 2 - only
Gangaavataranam 1st lesson. & 3rd lesson Vandekasmeerabharatam
One question should be answer A Or B 1x10=10marks (1 out of 2)

11. Essay Questions from prose unit- 3 Avantisundarikatha & charudattacharitam
One question should be answer A Or B 1x10=10marks (1 out of 2)

12. Annotations two from old poetry lesson -1 Indumateeswayamvaram & two from
Modernpoetry unit- 2 – 1st Gangaavataranam only 5x2=10marks (2 out of 4)

13. Annotations two from Unit-3 prose lesson -1 Avantisundarikatha two from charudattacharitam 5x2=10marks (2 out of 4)

BA/BCOM/BSc/BVocPROGRAM (4 years Honors)
Draft proforma for Syllabus framing
2020-21 onwards (21jan21)

SUBJECT

Members of BOS(Contact details)		

TABLE OF CONTENTS

S. No	Particulars	Page No.
1	Resolutions of the BOS	
2	Details of paper titles & Credits	
	a. Proposed combination subjects:	
	b. Student eligibility for joining in the course:	
	c. Faculty eligibility for teaching the course	
	d. List of Proposed Skill enhancement courses with syllabus, if any	
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	
	f. Required instruments/software/ computers for the course	
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	
	i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent	
3	Program objectives, outcomes, co-curricular and assessment methods	
4	Details of course-wise syllabus for Theory and Lab	
5	Model Question Papers for Theory and Lab	
6	Details of Syllabus on Skill Enhancement courses and Model Question Papers for Theory and Lab	
7	Panel of Experts for Question Paper setting/Evaluation	

Note: BOS is to providefinal soft copy in PDF and word formats and four copies of hard copies in bounded form to the office of Dean Academic affairs.

1. Resolutions of the Board of Studies

Meeting held on:…….Time:
At:

Agenda:

Members present:

Resolutions:

2. DETAILS OF PAPER TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./ Week (Arts/ Commeerce:5 and Science: 4+2)	Credits (Arts/ Commeerce:4 and Science: 4+1)	Max. Marks Cont/ Internal/Mid Assessment	Max. Marks Sem-end Exam
I							
II							
III							
IV							
V							

Note: *Course type code: T: Theory, L: Lab, P: Problemsolving

a. Proposed combination subjects:

b. Student eligibility for joining in the course:

c. Faculty eligibility for teaching the course

d. List of Proposed Skill enhancement courses with syllabus, if any

e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources

f. Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students)

Sem. No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
1	Lab Name:			
2	Lab Name:			

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations

Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any

h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects

S.No	Company/ Govt organization	Position type	Level of Position			

i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent

3. Program objectives, outcomes, co-curricular and assessment methods

BSc/BA/BCom	SUBJECT

1. Aim and objectives of UG program in Subject:

2. Learning outcomes of Subject (in consonance with the Bloom's Taxonomy):

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
      1. Assignments on:
      2. Student seminars (Individual presentation of papers) on topics relating to:
      3. Quiz Programmes on:
      4. Individual Field Studies/projects:
      5. Group discussion on:
      6. Group/Team Projects on:

   B General
      1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
      2. Group Discussions on:
      3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
      4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

4.Details of course-wise Syllabus

BSc/BA/BCom	Subject **(Semester: I)**	**Credits:**
Paper: 1	Title of Course	**Hrs/Wk:**

1. Aim and objectives of Course (Title of the course/paper):

6. Learning outcomes of Course (in consonance with the Bloom's Taxonomy):

7. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

   Unit-1

   Unit-2

   Unit-3

   Unit-4

   Unit-5

   Recommended Text Books:

   Reference books:

8. Details of Lab/Practical/Experiments/Tutorials syllabus:

   Recommended Text books:

Recommended Reference books:

9. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
      1. Assignments on:
      2. Student seminars (Individual presentation of papers) on topics relating to:
      3. Quiz Programmes on:
      4. Individual Field Studies/projects:
      5. Group discussion on:
      6. Group/Team Projects on:

   B. General
      1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
      2. Group Discussions on:
      3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
      4. Any similar activities with imaginative thinking.

10. Recommended Continuous Assessment methods:

5. MODEL QUESTION PAPER (Sem-end. Exam)

BSc	Subject (Semester: I)	Max. Marks:
Paper: 1	(Coursetitle)	3Hrs

BSc	Subject (Semester: V)	Credits:
Paper:5	(Course title)	Hrs/Wk:

1. Aim and objectives of Course (Title of the course):

2. Learning outcomes of Course (in consonance with the Bloom's Taxonomy):

3. Detailed Syllabus: Five units (i.e., each unit having 12 hours of class work)

   Unit-1

   Unit-2

   Unit-3

   Unit-4

   Unit-5

   Recommended Text Books:

   Reference books:

4. Details of Lab/Practical/Experiments/Tutorials syllabus:

Recommended Text books:

Recommended Reference books:

5. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
      1. Assignments on:
      2. Student seminars (Individual presentation of papers) on topics relating to:
      3. Quiz Programmes on:
      4. Individual Field Studies/projects:
      5. Group discussion on:
      6. Group/Team Projects on:
   B. General
      1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
      2. Group Discussions on:
      3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
      4. Any similar activities with imaginative thinking.

6. Recommended Continuous Assessment methods:

MODEL QUESTION PAPER (Sem-End. Exam)

BSc	Subject (Semester: VI)	Max. Marks:
Paper: 1		3Hrs

6.DETAILS OF SYLLABUS ON SKILL ENHANCEMENT COURSES AND MODEL QUESTION PAPERS FOR THEORY AND LAB

7. PANEL OF EXPERTS FOR QUESTION PAPER SETTING/EVALUATION

S.No	Name & Designation	Address with Ph and E-mail	Field of specialization/Expertise

UG Program (4 Years Honors)
CBCS- 2020-21

B. Com
Taxation & Accounting

Syllabus and Model Question Papers

TABLE OF CONTENTS

S. No.	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of Course titles & Credits	4
	a. Proposed combination subjects:	4
	b. Student eligibility for joining in the course:	4
	c. Faculty eligibility for teaching the course	4
	d. List of Proposed Skill enhancement courses with syllabus, if any	4
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	4
	f. Required instruments/software/ computers for the course	4
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	5
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	5
	i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent	5
3	Program objectives, outcomes, co-curricular and assessment methods	5
4	Details of course-wise syllabus for Theory and Lab	7
5	Model Question Courses for Theory and Lab	9
6	Details of Syllabus on Skill Enhancement courses and Model Question Courses for Theory and Lab	

1. Resolutions of the Board of Studies:

Meeting held on : 22/01/2021 Time: 10.00 Am
At: NTR Convention Centre, Adikavi Nannaya University Campus, Rajamahendravaram

Agenda: As per the directions and guidelines/modalities issued by the APSCHE for revising the curriculum framework and updating the syllabus as out-come based B. Com programme to be effect from 2020-21 academic year under CBCS for implementing in all affiliated colleges of AKNU

Members present:

Dr. N. Udaya Bhaskar	Chairman, Dept. of Commerce and Management Studies, Adikavi Nannaya University, Rajamahednravaram, East Godavari District
Dr.J.Sanath Kumar	Member, RRDS Govt Degree College, Bhimavaram, West Godavari District
Dr. Kopparthi Ammaji	Member, BGBS Women's College, Narsapur, West Godavari District
Dr. K. Ratna Manikyam	Member, Dept. of Commerce, Govt. College (A), Rajahmundry
Dr. M. Ramesh	Member, Dept. of Commerce and Management, Adikavi Nannaya University, Rajamahednravaram, East Godavari District

Resolutions: The B.COM board of Studies for B. Com (Taxation & Accounting) is resolved the followingimplementation subject to approval.

1. Adoption of revised-common programme structure and updating course-wise syllabi as per the guidelines issued by APSCHE.
2. Adoption of regulations on scheme of examination and marks/grading system of the University B.COM programme.
3. Preparation of Model question Courses in prescribed format.
4. Eligibility of student for joining the course.
5. List of Course-setters/Course evaluators with phone, email id in the prescribed format.

DETAILS OF COURSES TITLES AND CREDITS

Sem	Course No	Course Name	Course Type (T/P/L)	Hrs/Week	Credits	Max. Marks	Max. Marks
				Commerce:5	Commerce:4	Count/Internal/ Mid Assessment	Sem- End Exam
I	1A	Fundamentals of Accounting	T	5	4	25	75
	1B	Business Organization and Management	T	5	4	25	75
	1C	Business Environment	T	5	4	25	75
II	2A	Financial Accounting	T	5	4	25	75
	2B	Business Economics	T	5	4	25	75
	2C	Income Tax - I	T	5	4	25	75
III	3A	Advanced Accounting	T	5	4	25	75
	3B	Business Statistics	T	5	4	25	75
	3C	Income Tax - II	T	5	4	25	75
IV	4A	Corporate Accounting	T	5	4	25	75
	4B	Cost and Management Accounting	T	5	4	25	75
	4C	Assessment of Tax – Individual, HUF and Partnership	T	5	4	25	75
	4D	Business Laws	T	5	4	25	75
	4E	Auditing	T	5	4	25	75
	4F	Goods and Service Tax	T	5	4	25	75

Note: * Course Type Code : T-Theory, L - Lab, P: Problem solving

a) Proposed combination subjects: Taxation and Accounting

b) Student eligibility for joining in the course: 10+2 (CEC, CSE, A&T), Open Inter School and itsequivalent.

c) Faculty eligibility for teaching the course: Passed Post Graduation Degree with relevant specialization and also having higher qualification like SET/NET/Ph. D.

d) List of Proposed Skill enhancement courses with syllabus, if any.

e) Any newly proposed Skill development/Life skill courses with draft syllabus and required resources.

f) Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students).

g) List of Suitable levels of positions eligible in the Govt/Pvt organizations. Suitable levels of positions for these graduates either in industry/govt organization like, technical assistants/ scientists/ school teachers., clearly define them, with reliable justification.

S.No.	Position	Company/ Govt organization	Remarks	Additional skills required, if any
01	Accountant	Any Govt./Private Organization		
02	Supporting Staff	Any Govt./Private Organization		
03	Clerk	Banking Industry		
04	Entrepreneur	Own Business		

h) List of Govt. organizations / Pvt companies for employment opportunities or internships or projects.

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
01	Service Industry	Junior Assistant/Senior Assistant/LDC/UDC/Clerk		
02	Manufacturing Industry	Accountant/Cashier/Clerk		
03	Hotel Industry	Accountant/Cashier		
04	Banking Sector	Cashier/Asst. Cader/ Clerical		

i) Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent.

3. Program objectives, outcomes, co-curricular and assessment methods.

B. Com	Taxation & Accounting

1. Aim and objectives of B. Com program:
The B. Com programme aims to make the students employable and self-employment oriented (Self employable). It aims to make the students learn the writing and interpretation of books of accounts, be conversant with the financial and economic environment and acquire the management skills required to manage the business.

2. Learning outcomes of B. Com:

- ❖ This program could provide Industries, Banking Sectors, Insurance Companies, Financing companies, Transport Agencies, Warehousing etc., well trained professionals to meet the requirements.
- ❖ After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, over all Administration abilities of the Company.
- ❖ Capability of the students to make decisions at personal & professional level will increase after completion of this course. Students can independently start up their own Business.
- ❖ Students can get thorough knowledge of finance and commerce.

- ❖ The knowledge of different specializations in Accounting, taxation, costing with thepractical exposure helps the students to stand in organization.

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work.

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

A. Measurable:

1. Assignments on:
2. Student seminars (Individual presentation of Courses) on topics relating to:
3. Quiz Programmes on:
4. Individual Field Studies/projects:
5. Group discussion on:
6. Group/Team Projects on:

B. General

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus.
2. Group Discussions on: Subject related matters.
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers.
4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests).
2. Closed-book and open-book tests.
3. Coding exercises.
4. Practical assignments and laboratory reports.
5. Observation of practical skills.
6. Individual and group project reports.
7. Efficient delivery using seminar presentations.
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations.
10. Peers and self-assessment, outputs form individual and collaborative work.

4.Details of course-wise Syllabus:

DETAILS OF COURSE WISE SYLLABUS

B.Com	Semester: I	Credits: 4
Course: 1A	FUNDAMENTALS OF ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organisations.

UNIT I:

Introduction : Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

UNIT II:

S**ubsidiary Books:** Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).

UNIT III:

Trial Balance and Rectification of Errors: Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)

UNIT IV:

Bank Reconciliation Statement: Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).

UNIT V:

Final Accounts: Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

TEXT BOOKS:

1. Ranganatham G and Venkataramanaiah, Fundamentals of Accounting, S Chand Publications.
2. T.S.Reddy& A. Murthy, Financial Accounting, Margham Publications.
3. S N Maheswari and SK Maheswari, Financial Accounting, Vikas Publications.
4. R L Gupta & V K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons.
5. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers.
6. Tulasian, Accountancy -I, Tata McGraw Hill Co.
7. V.K.Goyal, Financial Accounting, Excel Books .
8. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications.
9. Prof EChandraiah : Financial Accounting Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Bridge Course for Non-commerce Students.
- Practice of Terminology of Accounting .
- Quiz, Word Scramble.
- Co-operative learning.
- Seminar.
- Co-operative learning .
- Problem Solving Exercises.
- Matching, Mismatch.
- Creation of Trial Balance.
- Visit a firm (Individual and Group).
- Survey on sole proprietorship and prepare final accounts of concern.
- Group Discussions on problems relating to topics covered in syllabus.
- Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: I
Taxation & Accounting
Course 1A: Fundamentals of Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Bookkeeping.
2. Petty Cash Book.
3. Suspense Account.
4. Need for Bank Reconciliation.
5. Trading Account.
6. Accounting Cycle.
7. Journal Proper.
8. Trial Balance .

Section-B

Answer **FIVE** questions **5X10=50M**

9. a). What are the advantages and limitations of Double Entry System?

(OR)

b). Briefly explain accounting concepts and conventions.

10. a) Explain various types of subsidiary books.

(OR)

b) Prepare Triple Column Cash Book from the following information of Koushik.

1st March 2020

1. Cash in hand Rs.1532 and balance at bank Rs.18500.
2. Received from Salman Rs.590 and allowed him discount Rs.10.
3. Paid salaries for the month of February Rs.200.
4. Purchased merchandise payment made by cheque Rs.3200.
8. Paid Bilal & Co by cheque Rs.800 discount received Rs.20.
10. Withdrew from bank for office use Rs.400. paid rent in cash Rs.300.
14. Deposited into bank Rs.500.
15. Cash sales Rs.2460.
18. Purchased a motor car for Rs.6500 payment made by cheque.
23. Received a cheque from Salman for Rs.391 discount Rs.9.
25. Paid wages Rs.350.
28. Salman cheque paid into bank.
29. Paid general expenses Rs.360.
31. Bank informed that Salman's cheque has been dishonored.
31. Cash sales Rs.6440.

11. a) Briefly explain the advantages and limitations of trial balance

(OR)

b).Define Error. Briefly explain various types of erros.

12. a) Write the reasons for difference between pass book and cash book for bank reconciliation.

(OR)

(b) From the following particulars, prepare a Bank Reconciliation Statement for M/s Ramesh Traders as at 31st December, 2020.

i. Bank Balance as per cash book 8,000

ii. Two cheques were issued for 18,000 and 12,000 respectively, of which the cheque for 12,000 was presented on 4rd January next year.
iii. Cheque for 6,000 deposited on 25th was collected and credited by the bank on 4th January.
iv. Dividends collected by the bank 1,800 not recorded in the cash book.
v. Information relating to 4,600 deposit made by a debtor directly into the bank account has not yet been received.
vi. Bank charges 750 have been debited to the account by the bank on 31st December.

13. a) Distinguish between Profit and Loss Account and Balance Sheet.

(OR)

b) From the following Trial Balance of Ramesh as on 31st March 2020, prepare Trading and Profit and Loss account and Balance sheet taking into account the adjustments.

Trial Balance

Debit Balances Rs.	**Credit Balances Rs.**
Purchases 2,00,000	Capital 3,00,000
Salaries 10,000	Sales 2,50,000
Rent 7,500	Creditors 1,05,000
Insurance premium 1,500 .	
Drawings 50,000	
Machinery 1,40,000	
Cash at bank 22,500	
Computers 1,25,000	
Furniture 50,000	
Cash 10,000	
Opening Stock 26,000	
Sundry debtors 12,500	

Adjustments:

1. Closing stock as on 31.3.2015 Rs. 39,000
2. Rent outstanding Rs. 1,000
3. Provide interest on capital @ 10% and on Drawings @ 8%.
4. Depreciation on Machinery @10% and Furniture @ 5%

B.Com	Semester: I	Credits: 4
Course: 1B	BUSINESS ORGANIZATION AND MANAGEMENT	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will be able to:

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulate new models of business organizations.

UNIT I:

Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organisation.

UNIT II:

Forms of Business Organizations: Features, Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company.

UNIT III:

C**ompany Incorporation:** Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association - Contents of Prospectus.

UNIT IV:

Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs Management - Levels of Management.

UNIT V:

Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organisation – Line and staff of Organisation.

REFERENCE BOOKS:

1. Industrial Organization and Management,C.B.Guptha, Sultan Chand.
2. Business Organization - C.D.Balaji and G. Prasad, Margham Publications, Chennai.
3. Business Organization -R.K.Sharma and Shashi K Gupta, Kalyani Publications.
4. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: M.C. Shukla S. Chand,
7. Business Organisation and Management, Dr.NeeruVasishth, Tax Mann Publications.
8. Business Organisation and Management, Dr B E V L Naidu, Seven Hills International Publishers, Hyderabad .

Suggested Co-Curricular Activities:

- Book Reading
- Student Seminars, Debates
- Quiz Programmes
- Assignments
- Co-operative learning
- Individual / Group Field Studies
- Group Discussions on problems relating to topics covered by syllabus
- Collecting prospectus of different companies throB.Comh media
- Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
- Talk on current affairs about business, industry etc.
- Simple project work on development of Certificate of Incorporation, Prospectus and Certificate of commencement of business
- Biography of well-known management thinkers and managers of gigantic companies
- Examinations (Scheduled and surprise tests).

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: I
Taxation & Accounting
Course1B: Business Organization And Management

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Industry
2. Public Sector Enterprises
3. Prospectus
4. Administration
5. Organization
6. Commerce
7. MNCs
8. Line and Staff

Section-B

Answer **FIVE** questions **5X10=50M**

9 a) Define Trade. Briefly explain classification of trade.

(OR)

b) Define Business. What are the features and functions of Business?

10 a) What are the merits and demerits of Sole Proprietorship.?

(OR)

b) Distinguish between Private Limited Company and Public Limited Company.

11 a) Define Memorandum of Association. Explain its clauses.

(OR)

b) Briefly explain Articles of Association and its contents.

12 a) Explain the functions of Management.

(OR)

b) Explain Fayol's 14 Principles of Management.

13 a) Briefly explain merits and demerits of Planning.

(OR)

b) What are the steps involved in Planning?

B.Com	Semester: I	Credits: 4
Course: 1C	BUSINESS ENVIRONMENT	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the concept of business environment.
- Define Internal and External elements affecting business environment.
- Explain the economic trends and its effect on Government policies.
- Critically examine the recent developments in economic and business policies of the Government.
- Evaluate and judge the best business policies in Indian business environment.
- Develop the new ideas for creating good business environment.

UNIT I:

Overview of Business Environment: Business Environment – Meaning – Characteristics – Scope - Macro and Micro Dimensions of Business Environment - Environmental Analysis.

UNIT II:

Economic Environment: Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans.

UNIT III:

Economic Policies: Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI

UNIT IV:

Social, Political and Legal Environment: Concept of Social Responsibility of Business towards Stakeholders - Demonetisation, GST and their Impact - Political Stability - Legal Changes.

UNIT V:

Global Environment : Globalization – Meaning – Role of WTO – WTO Functions - IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalisation.

SUGGESTED READINGS:

1. Francis Cherunilam : Business Environment, Himalaya Publishing House .
2. Dr S Sankaran: : Business Environment, Margham Publications.
3. S.K. Mishra and V.K. Puri : Economic Environment of Business, HPH.
4. Rosy Joshi and Sangam Kapoor : Business Environment, Kalyanai Publications.
5. A C Fernando: Business Environment, Pearson.
6. Dr V Murali Krishna, Business Environment, Spectrum Publications.
7. Namitha Gopal, Business Environment, McGraw Hill.

Suggested Co-Curricular Activities:

- Seminar on overview of business environment.
- Debate on micro v/s macro dimensions of business environment.
- Co-operative learning.
- Seminar on Monetary policies of RBI.
- Debate on social, political and legal environment.
- Group Discussions on Global environment and its impact on business.
- To learn about NITI Ayog and National Development Council.
- Seminars on Economic policies like New Industrial policy, Fiscal policy etc.
- Reports on WTO, BRICS, SAARC etc.
- Examinations (Scheduled and surprise tests) on all units

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: I
Taxation & Accounting
Course 1C: Business Environment

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Environment Analysis.
2. Structure of Economy.
3. Fiscal Policy.
4. GST.
5. Trade Blocks.
6. NITI Ayog.
7. Competition Law.
8. Economic Policy.

SECTION- B

Answer **FIVE** questions **5X10=50M**

9. a) Define Business Environment. What factors influencing business environment?
(OR)
b) Describe the components and significance of business environment.

10. a) What do you mean by Economic Planning? Explain brief view of Five-Year Plans.
(OR)
b) Briefly explain the economic policies and planning the economic conditions.

11 a) Define Industrial Policy. Explain Industrial Policy 1991.
(OR)
b) What are the importance and regulations of New Economic Policy?

12. a) What are the social, political factors influencing Business Environment?
(OR)
b) Briefly explain the concept and objectives of social responsibility of business towards stakeholders.

13. a) Briefly explain the role of SAARC and BRICS in Globalization.
(OR)
b) What are the objectives, functions and organization structure of WTO?

B.Com	Semester: II	Credits: 4
Course: 2A	FINANCIAL ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course the student will able to:

- Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- Analyze the accounting process and preparation of accounts in consignment and joint venture.
- Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.
- Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.
- Design an accounting system for different models of businesses at his own using the principles of existing accounting system.

UNIT I:

Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line – Written Down Value –Annuity and Depletion Method (including Problems).

UNIT II:

Provisions and Reserves: Meaning – Provision vs. Reserve – Preparation of Bad Debts Account – Provision for Bad and Doubtful Debts – Provision for Discount on Debtors– Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).

UNIT III:

Bills of Exchange: Meaning of Bill – Features of Bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (including Problems).

UNIT IV:

Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales – Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).

UNIT V:

Joint Venture Accounts: JointVenture - Features - Difference between Joint- Venture and Consignment – Accounting Procedure – Methods of Keeping Records–One Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).

REFERENCE BOOKS:

1. Ranganatham G and Venkataramanaiah, **Financial Accounting-II,** S Chand Publications, New Delhi.
2. T. S. Reddy and A. Murthy - **Financial Accounting**, Margham Publications.
3. R.L. Gupta & V.K. Gupta, **Principles and Practice of Accounting**, Sultan Chand.
4. SN Maheswari and SK Maheswari – **Financial Accounting**, Vikas Publications.
5. S.P. Jain & K.L Narang,**Accountancy-I**, Kalyani Publishers.
6. Tulsan, **Accountancy-I**, Tata McGraw Hill Co.
7. V.K. Goyal, **Financial Accounting**, Excel Books.
8. T.S. Grewal, **Introduction to Accountancy**, Sultan Chand & Co.
9. Haneef and Mukherjee, **Accountancy-I**, Tata McGraw Hill.
10. Arulanandam and Ramana, **Advanced Accountancy**, Himalaya Publishers.
11. S.N.Maheshwari&V.L.Maheswari, **Advanced Accountancy-I**, Vikas Publishers.
12. Prof E Chandraiah, **Financial Accounting**, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Quiz Programs.
- Problem Solving Exercises.
- Co-operative learning.
- Seminar.
- Group Discussions on problems relating to topics covered by syllabus.
- Reports on Proforma invoice and account sales.
- Visit a consignment and joint venture firms(Individual and Group).
- Collection of proforma of bills and promissory notes.
- Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION

SEMESTER: II

Taxation & Accounting

Course 2A: Financial Accounting

Time: 3Hrs. Max. Marks: 75

SECTION-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Depletion Method of Depreciation
2. General Reserve
3. Drawer
4. Normal Loss
5. Vendor
6. Bad debts
7. Del-credere commission
8. Consignor

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Depreciation. What are the causes for Depreciation?

(OR)

b) A company whose accounting year is the calendar year purchased on 1.1.2018 a machine for Rs.40,000. It purchased further machinery on 1st October 2018 for Rs. 20,000 and on 1st July for Rs. 10,000. On 1.7.2020, 1/4th of the machinery installed on 1.1.2018 became obsolete and was sold for Rs. 6,800. Show how the machinery account would appear in the books of the company for all the 3 years under diminishing balance method. Depreciation is to be provided at 10% p.a.

10. a) Define Provision and Reserve with examples and difference between provision and reserve.

(OR)

b) What are the provisions? How are they created? Give accounting treatment in case of provision for doubtful debts.

11. a) B owes C a sum of Rs 6,000. On 1st April, 2011 he gives a promissory note for the amount for 3 months to C who gets it discounted with his bankers for Rs 5,760. On the due date the bill is dishonoured, the bank paying Rs 15 as noting charges. B then pays Rs 2,000 in cash and accepts a bill of exchange drawn on him for the balance together with Rs 100 as interest. This bill of exchange is for 2 months and on the due date the bill is again dishonoured, C paying Rs 15 for noting charges draft the journal entries to be passed in C's books.

(OR)

b) What is meant by renewal of a bill of exchange? Distinguish between Promissory Note and Bills of Exchange.

12. a) Define consignment account. Briefly explain the features and objectives of consignment accounts.

(OR)

b) Raja Mills Ltd. of Ahmedabad sent 100 pieces shirting to Fancy Stores, Delhi, on consignment basis. The consignees are entitled to receive 5 per cent commission plus expenses. The cost to Raja Mills Ltd. is Rs 600 per piece.

Fancy Stores, Delhi, pay the following expenses: Railway Freight, etc. Rs 1,000 Godown Rent and Insurance Rs 1,500 Raja Mills Ltd., draw on the consignees a draft for Rs 30,000 which is duly accepted. It is discounted for Rs 28,650. Later Fancy Stores, Delhi, report that the entire consignment has been sold for Rs 78,000. Show journal entries and the important ledger accounts in the books of the consignor.

13 a) A and B were partners in a joint venture sharing profits and losses in the proportion of four-fifth and one-fifth respectively. A supplies goods to the value of Rs.5,000 and inures expenses amounting to Rs.400. B supplies goods to the value of Rs.4,000 and his expenses amounting to Rs.300. B sells goods on behalf of the joint venture and realizes Rs.12,000. B is entitled to a commission of 5 percent on sales. B settles his accounts by bank draft. Give journal entries and necessary ledger accounts in the books of both the parties.

(OR)

b) Difference between consignment and joint venture.

B.Com	Semester: II	Credits: 4
Course: 2B	BUSINESS ECONOMICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Describe the nature of economics in dealing with the issues of scarcity of resources.
- Analyze supply and demand analysis and its impact on consumer behaviour.
- Evaluate the factors, such as production and costs affecting firms behaviour.
- Recognize market failure and the role of government in dealing with those failures.
- Use economic analysis to evaluate controversial issues and policies.
- Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.

UNIT I:

Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics - Micro and Macro Economics and their Interface.

UNIT II:

Demand Analysis: Meaning and Definition of Demand – Determinants to Demand –Demand Function -Law of Demand – Demand Curve – Exceptions to Law of Demand - Elasticity of Demand – Measurements of Price Elasticity of Demand.

UNIT III:

Production, **Cost and Revenue Analysis**: Concept of Production Function – Law of Variable Proportion - Law of Returns to Scale - Classification of Costs -Break Even Analysis – Advantages.

UNIT IV:

Market Structure: Concept of Market – Classification of Markets -Perfect Competition – Characteristics – Equilibrium Price -Monopoly – Characteristics – Equilibrium Under Monopoly.

UNIT V:

National Income: Meaning – Definition – Measurements of National Income - Concepts of National Income - Components of National Income-Problems in Measuring National Income.

REFERENCES:

1. Business Economics -S.Sankaran, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics - Himalaya Publishing House.
4. Business Economics - Aryasri and Murthy, Tata McGraw Hill.
5. Business Economics -H.L Ahuja, Sultan Chand & Sons
6. Principles of Economics -Mankiw, Cengage Publications
7. Fundamentals of Business Economics -Mithani, Himalaya Publishing House
8. Business Economics -A.V. R. Chary, Kalyani Publishers, Hyderabad.
9. Business Economics -Dr K Srinivasulu, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Assignments.
- Student Seminars.
- Quiz , JAM.
- Study Projects.
- Group Discussion.
- Graphs on Demand function and demand curves.
- Learning about markets.
- The oral and written examinations (Scheduled and surprise tests).
- Market Studies.
- Individual and Group project reports.
- Annual talk on union and state budget.
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: II
Taxation & Accounting
Course 2B: Business Economics

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Micro Economics.
2. Law of Demand.
3. Cost Analysis.
4. Monopoly.
5. National Income.
6. Demand Curve.
7. BEP.
8. Forecasting.

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Business Economics. Explain the nature and scope of Business Economics.

(OR)

b) Distinguish between Micro and Macro economics.

10. a) What is meant by Demand? What are the exceptions to Law of Demand?

(OR)

b) What do you understand by elasticity of demand ? Explain the factors which determine the elasticity of demand.

11. a) Discuss the various concepts of cost curves. Why is long cost curve flatter than the short-run cost curve?

(OR)

b) What are the advantages and limitations of Break Even Analysis?

12. a) Define Market. Briefly explain the classification of markets.

(OR)

b) Write an essay on Monopoly.

13. a) Describe the different concepts and components in National Income.

(OR)

b) Briefly explain problems in measuring National Income.

B.Com	Semester: II	Credits: 4
Course: 2C	INCOME TAX - I	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Know the Residential status determination of income tax purpose
- Know the exempted incomes from income tax
- Familiarize with the Income Tax & Income Tax Act 1961.
- Compute the taxable income under the heads of Income from salary, House property.

Unit-I:

Introduction: An Overview of Indian Tax System – Type of Taxes: Direct and Indirect taxes – Union list and State list – Tax Rates – Tax Evasion vs. Tax Avoidance - PAN (Theory only).

Unit-II:

Concepts of Income Tax: Income, Person, Assessee, Assessment year, Capital and Revenue Receipts - Residential Status. (Problems)

Unit-III:

Exempted Incomes: Incomes Exempted from tax u/s10 - Agricultural Income and tax treatment (Problems on treatment of Agricultural income).

Unit-IV:

Income from Salary: Meaning - Allowances - Perquisites - Profits-in-lieu of Salary - Deductions from Salary Income -Computation of Salary income and qualified savings eligible for deduction u/s 80 C (Problems on Computation of Income from Salaries).

Unit-V:

Income from House Property: Meaning, Annual value, Let-out / Self- occupied / Deemed to be let-out house, Deemed ownership, Co-ownership, Deductions from Annual value and Computation of Income from House property (Problems on Computation of Income from House properties).

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

Suggested Co-Curricular Activities:

- Debates & Student Seminars.
- Quiz Programmes.
- Guest Lecture by Auditor on Tax Calculation of employees.
- Collection, display and Practicing of filling of different forms used in banks.
- Examinations (Scheduled and surprise tests) and Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: II
Taxation & Accounting
Course 2C: Income Tax - I

Time: 3Hrs. Max. Marks: 75

Section-*A*

Answer any **FIVE** of the following questions. **5X5=25M**

1. Assessment year
2. Non-Resident
3. Incidence of tax
4. Perquisites
5. Tax Rebate
6. Agricultural income
7. Municipal rental value
8. Standard Deduction u/s 16(i)

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Briefly explain the difference between direct and indirect taxes.

(OR)

b) Distinguish between tax evasion and tax avoidance.

10. a) How do you determine the residential status of an individual?

(OR)

b) Mrs. Sumitha , a citizen of India went to Germany on 2-8-2012 for higher studies for a period of two years. After she came back, she was employed in a multinational company in India . The company sent her for 6 months training to US on 1-3-2015. She was transferred to the company's Head Office in Newyork on 15-8-2016. However, she left India on 2-10-2016 and reported for duty on 5-10-2016. She visited India during the months of November and December 2016. The company transferred her back to her original post in India and she returned to India on 26-1-2019. Determine her residential status for the Assessment year 2020-21

11. a) What is agricultural income under income tax?

(OR)

b) Briefly explain any ten incomes exempted from Income Tax.

12. a) What are Perquisites? Explain the different types of perquisites.

(OR)

b) Mr. Madhava aged 45 years is working as assistant in the marketing department in Bangalore. His salary income details are as follows.
Basic salary Rs. 15000 pm
Dearness allowance Rs. 5000pm
Dearness pay Rs.2000pm
Commission Rs. 45000pa
Entertainment allowance Rs. 700 pm (Rs.6000 spent on entertainment during the year)
House Rent allowance Rs. 7500 pm (Rent paid Rs.9000 pm)
Compute taxable salary for the Assessment year 2020-21

13. a) What are the deductions allowed from Annual Value of House Property while computing the Income from House Property?

(OR)

b) Mr.X is the owner of property. It is given on rent of Rs. 11000 pm. Municipal value of the property is Rs.135000. Fair rent is Rs.143000 and standard rent is Rs.130000. Municipal tax paid by Mr. X is Rs.26000 on 1-4-2019 rent is increased from Rs. 11000 pm to Rs. 14000pm. Find out taxable income from house property for the Assessment year 2020-21.

B.Com	Semester: III	Credits: 4
Course: 3A	ADVANCED ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the concept of Non-profit organisations and its accounting process.
- Comprehend the concept of single-entry system and preparation of statement of affairs.
- Familiarize with the legal formalities at the time of dissolution of the firm .
- Prepare financial statements for partnership firm on dissolution of the firm.
- Employ critical thinking skills to understand the difference between the dissolution of the firmand dissolution of partnership.

UNIT I:

Accounting for Non Profit Organizations: Non Profit Entities- Meaning - Features of Non-Profit Entities –Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including problems).

UNIT II:

Single Entry System: Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems).

UNIT III:

Hire Purchase System: Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems).

UNIT IV:

Partnership Accounts-I: Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner(including problems).

UNIT V:

Partnership Accounts-II: Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).

REFERENCES BOOKS:

1. Advanced Accountancy: T S Reddy and A Murthy by Margham Publications.
2. Financial Accounting: SN Maheswari& SK Maheswari by Vikas Publications.
3. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
4. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand &Sons..
5. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas publishers.
6. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP Publications.
7. Accountancy–III: Tulasian, Tata McGraw Hill Co.
8. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
9. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.
10. Advanced Accounting: Prof B Amarnadh, Seven Hills International Publishers.
11. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.

Suggested Co-Curricular Activities:

- Quiz Programs and Problem Solving exercises.
- Co-operative learning.
- Seminar and Visit a single-entry firm, collect data and Creation of Trial Balance of the firm .
- Visit Non-profit organization and collect financial statements.
- Critical analysis of rate of interest on hire purchase schemes.
- Visit a partnership firm and collect partnership deed .
- Debate on Garner v/s Murray rule in India and outside India.
- Group Discussions on problems relating to topics covered by syllabus.
- Examinations (Scheduled and surprise tests) on all units.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: III
Taxation & Accounting
Course 3A: Advanced Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Non-profit organizations
2. Statement of Affairs
3. Hire Vendor
4. Partnership Deed
5. Garner Vs Murrey
6. Dissolution of Partnership
7. Accounting Process
8. Double Entry System

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Distinguish between Income and Expenditure and Receipts and Payment Accounts.

(OR)

b) What are the provisions and features of Non-profit organizations?

10. a) Briefly explain advantages and limitations of single entry system.

(OR)

b) Mr. Ramesh, who keeps his books on single entry system, tells you that his capital on 31-12-2019 is Rs.40,500 and on 1st January 2019 was Rs.25,800. He further informs you that he withdraws Rs.3,500 for personal purposes. He invested further capital of Rs.5,000. Besides this, there is no other information. You are required to prepare Statement of Profit and Loss for the year ended on 31-12-2019.

11. a) Malnad Coffee Works Ltd., boB.Comht coffee drying machine costing Rs.6,56,000 from Xavier Ltd on 1st January 2019 on hire purchase basis. Rs. 2,00,000 was paid on signing the contract and the balance in three annual instalments of Rs. 2,00,000 (each) by the end of December every year. Interest was charged at 15% per annum. Life of the machine was expected to be four years. You are required to pass the journal entries and necessary ledger accounts in the books of (i) Malnad Coffee Works Ltd., and (ii) Xavier Ltd.

(OR)

b) Briefly explain the advantages and limitations of Instalment System.

12. a) Briefly explain the classification of Partners.

(OR)

b) A and B are partners in a firm sharing profits and losses in the ratio of 3:2. A new partner C is admitted. A surrenders 1/5th of his share and B surrenders 2/5th of his share and B surrenders 2/5th of his share in favour of C. For the purpose of C's admission, goodwill of the firm is valued at Rs.75,000 and C brings in his share of goodwill in cash which is retained in the firm's books. Journalise the above transactions.

13. a) the Balance sheet of X, Y and Z as at 31 st March, 2018 was:

Liabilities		**Amount Rs.**	**Assets**	**Amount Rs.**
Bills Payable		2000	Cash at Bank	5,800
Employees' Provident Fund		5000	Bills Receivable	800
Workmen Compensation Reserve		6000	Stock	9,000
General Reserve		6000	Sundry Debtors	16,000
Loans		7100	Furniture	2,000
Capital A/cs:			Plant and Machinery	6,500
X	22,750		Building	30,000
Y	15,250		Advertising Suspense	6,000
Z	12,000	50,000		
		76,100		**76,100**

The profit-sharing ratio was 3:2:1. *Z* died on 31st July, 2018. The Partnership Deed provides that:
(i) Goodwill is to be calculated on the basis of three years' purchase of the five years' average profit. The profits were: 2017-18: Rs. 24,000; 2016-17: Rs. 16,000; 2015-16: Rs. 20,000 and 2014-15: Rs. 10,000 and 2013-14: Rs. 5,000.
(ii) The deceased partner to be given share of profits till the date of death on the basis of profits for the previous year.
(iii) The Assets have been revalued as: Stock Rs.10,000; Debtors Rs. 15,000; Furniture Rs.1,500; Plant and Machinery Rs. 5,000; Building Rs.35,000. A Bill Receivable for Rs. 600 was found worthless.
(iv) A Sum of Rs. 12,233 was paid immediately to *Z*'s Executors and the balance to be paid in two equal annual installments together with interest @ 10% p.a. on the amount outstanding.Give Journal entries and show the *Z*'s Executors' Account till it is finally settled.

(OR)

b) How would you distinguish between dissolution of partnership and dissolution of Firm?

B.Com	Semester: III	Credits: 4
Course: 3B	BUSINESS STATISTICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the importance of Statistics in real life.
- Formulate complete, concise, and correct mathematical proofs.
- Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.
- Build and assess data-based models.
- Learn and apply the statistical tools in day life.
- Create quantitative models to solve real world problems in appropriate contexts.

UNIT I:

Introduction to Statistics: Definition – Importance, Characteristics and Limitations of Statistics - Classification and Tabulation – Frequency Distribution Table -Diagrams and Graphic Presentation of Data (including problems)

UNIT II:

Measures of Central Tendency: Types of Averages – Qualities of Good Average - Mean, Median, Mode, and Median based Averages-Geometric Mean – Harmonic Mean(including problems)

UNIT III:

Measures of Dispersion: Meaning and Properties of Dispersion – Absolute and Relative Measures - Types of Dispersion-Range - Quartile Deviation (Semi – Inter Quartile Range) -Mean Deviation - Standard Deviation - Coefficient of Variation. (including problems)

UNIT IV:

Skewness and Kurtosis: Measures of Skewness: Absolute and Relative Measures- Co-efficient of Skewness: Karl Pearson's, Bowley's and Kelly's - Kurtosis: Meso kurtosis, Platy kurtosis and Leptokurtosis (including problems)

UNIT V:

Measures of Relation: Meaning and use of Correlation – Types of Correlation - Karlpearson's Correlation Coefficient - Probable Error-Spearman's Rank-Correlation (including problems)

TEXT BOOKS:

1. Business Statistics, Reddy C.R., Deep Publications.
2. Statistical Methods: Gupta S.P.Sultan Chand & Sons.
3. Statistics-Problems and Solutions: Kapoor V.K, Sultan Chand &Sons.
4. Fundamentals of Statistics: Elhance. D.N
5. Business Statistics, Dr.P.R.Vittal, Margham Publications
6. Business Statistics, LS Agarwal, Kalyani Publications.
7. Statistics: Dr V Murali Krishna, Seven Hills International Publishers.
8. Fundamentals of Statistics: Gupta S.C. Sultan Chand &Sons.
9. Statistics-Theory, Methods and Applications: Sancheti, D.C. & Kapoor V.K.
10. Business Statistics: J.K. Sharma, Vikas Publishers.
11. Business Statistics: Bharat Jhunjhunwala, S Chand Publishers.
12. Business Statistics: S.L.Aggarval, S.L.Bhardwaj and K.Raghuveer, Kalyani Publishers.

Suggested Co-Curricular Activities :

- Student Seminars, Quiz. and Problem Solving Exercises.
- Observe Live Population Clocks – India and world.
- Collection of statistical data of village/town, District, State, Nation.
- Participate in Crop Cutting Experiments at villages.
- Percentiles in CET exams.
- Practice Statistical Functions in MS Excel and Draw diagrams and Graphs in MS Excel.
- Use statistical tools in real life like class/college results, local production etc.
- Prepare questionnaire and schedule.
- Application of averages in everyday life and Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION

SEMESTER: III

Taxation & Accounting

Course 3B: Business Statistics

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Classification of Data
2. Harmonic Mean
3. Range
4. Skewness
5. Correlation
6. Probable Error
7. Coefficient of Variation
8. Frequency Distribution

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Highlight the role and importance of statistics in business decision making in detail.

(OR)

b) Briefly explain the nature and scope of Business Statistics.

10. a) What are the advantages and limitations of measures of central tendency?

(OR)

b) Calculate Mean and Variance of the following Data.

Size	14	16	18	20	22	24	26
Frequency	12	13	14	15	13	12	16

11. a) Calculate quartile deviation and its coefficient from the following data :

C.I	0-10	10-20	20-30	30-40	40-50
F	5	7	10	5	8

(OR)

b) Define standard deviation. Briefly explain advantages and limitations of standard deviation.

12.a) Given the following information, find the number of items (n) where rxy = 0.8, x$\sum$y = 2.5,σxy =60, $\sum$2 = 90, where x and y are the deviations from the respective means.

(OR)

b) Briefly explain the measures of skewness.

13. a) Calculate the co-efficient of correlation from the following data:

X	12	9	8	10	11	13	07
Y	14	8	6	9	11	12	3

ThroB.Comh Karl Pearson's method.

(OR)

b) Explain various types of correlation.

B.Com	Semester: III	Credits: 4
Course: 3C	INCOME TAX -II	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Calculate Deductions U/s 80's of & Income Tax Act 1961.
- Compute the taxable income under the heads of Profits & gains of Business or profession, Capital gains and Income from other sources.
- Clubbing provisions and Set off and Carry forward of losses.

Unit-I:

Profits and Gains of Business or Profession:

Chargeability- Expenses expressly allowed and disallowed – General deductions- Depreciation- Computation of income from business or profession – Special provisions for computation of income on estimated basis (Simple problems on computation of income from business and income from profession)

Unit-II:

Capital Gains:

Chargeability- Meaning and Types of Capital Asset- Meaning of Transfer-Cost of Acquisition, Cost of improvement, cost inflation index- short term and long-term capital gains- Exemptions from capital gains- Computation of Taxable Capital Gains(Problems on computation of taxable capital gains)

Unit-III:

Income from other sources and Clubbing Provisions & Set Off and Carry forward:

Chargeability – General Incomes – Specific Incomes – Deductions U/s 57 – Problems -Set-off and Carry forward of losses- Income of other persons included in assesses total income (Clubbing of income)

Unit-IV:

Deductions (Sec 80):

Basic Rules of deductions, Deductions in Computing Total Income.

Unit V:

Gross Total Income and Computation of Taxable Income:

Gross Total income - Deductions from Gross total income of individual- tax rates- Rebate u/s 87A - Computation of Total Income and Tax Liability of an Individual (Simple problems).

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

Suggested Co-Curricular Activities:

- Quiz programs and Seminars .
- Guest lectures on income tax return filling.
- Visit a Income Tax practitioner
- Conducting the survey on changes in tax rebates in near budget.
- Examinations (Scheduled and surprise tests) .

MODEL QUESTION COURSE
B.Com DEGREE EXAMINATION
SEMESTER: III
Taxation & Accounting
Course 3C: Income Tax - II

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Allowable expenses of business
2. Depreciation
3. Cost of acquisition
4. STCA
5. Any 4 general incomes
6. Deduction u/s 80 D
7. Clubbing of income
8. Gross total income

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Explain the various expenses which are not allowed for calculation of Income from Business.

(OR)

b) Profit and Loss account of M/S Raju & Company

General expenses	7,000	Gross Profit	1,40,000
Fire Insurance Premium	2,000	Bad debts	4,000
Bad debts	1,000	Interest from Govt.	4,000
Salaries	65,000	Rent Received from employees	12,000
Advertisements (in Cash)	22,250	Interest from debtors for delayed payment	6,000
Proprietor's Salary	12,500		
Interest on Capital	3,000		
Motor Car Expenses	750		
	1,66,000		**1,66,000**

General expenses include Rs. 4,000/- paid as compensation to an old employee whose services were terminated the interest of the business and Rs. 2200/- by way of help to a poor students. Depreciation calculated according to the rates comes to Rs. 2900/- sales tax was paid on 1-5-2020. Compute business income for the year 2020-21.

10. a) What are the deductions available in computation of Income from Capital gains?

(OR)

b) Mr. Ramananad inherited 20 acres of agricultural land in urban limits form his father during 1979. The FMV on 1-4-1981 was Rs. 38,000 per acre. He made improvements during the P.Y 1985-86 at cost of Rs. 3,000/- per acre (Cll 133). On 17-8-2019 he sold 10 acres at Rs. 12,50,000/- per acre and expenditure on transfer was 4%. He made the following appropriations.

a) Purchased another of 10 acres of agricultural land at Rs. 1,90,000/- per acre.
b) Purchased residential house for Rs. 24,00,000/-
c) Paid Rs. 9,00,000/- for a bank loan for private purpose.

Compute taxable capital gain.

11. a) What are the specific incomes available in computation of Income from other sources?

(OR)

b) Mr. X, a resident individual, receives in cash the following income as interest on securities during the previous year ending March 31, 2020 :

- Rs. 4,000 as interest on Govt. securities.
- Rs. 3,600 as interest on debentures issued by the local authority.
- Rs. 3,600 as interest on debentures of PQR Ltd., (not listed at any stock exchange in India).
- Rs.7,200 as interest on debentures of ABC Ltd. (listed on Delhi Stock Exchange).
- Rs. 7,200 as interest on tax free debentures of GE Ltd., (not listed on any stock exchange).

Assuming that the interest is paid in each case on June 30 and Dec. 31, what is the income from interest on securities for the assessment year 2020-21?

12. a) Deductions from gross total income u/s 80 c

(OR)

b) Deductions from gross total income u/s 80 G

13. a) Computation of total income procedure?

(OR)

b) From the following information, compute total income and Tax liability of an individual

- Income from salary Rs.100000
- House property Rs.75000
- Business income Rs.125000
- Other sources Rs.50000
- Capital gains Rs.25000

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B.Com	Semester: IV	Credits: 4
Course: 4A	CORPORATE ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the Accounting treatment of Share Capital and aware of process of book building.
- Demonstrate the procedure for issue of bonus shares and buyback of shares.
- Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments.
- Participate in the preparation of consolidated accounts for a corporate group.
- Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions.
- Communicate accounting policy choices with reference to relevant laws and accounting standards.

UNIT I:

Accounting for Share Capital: Kinds of Shares – Types of Preference Shares – Issue of Shares at Par, Discount and Premium - Forfeiture and Reissue of Shares (including problems).

UNIT II:

Issue and Redemption of Debentures and Issue of Bonus Shares: Accounting Treatment for Debentures Issued and Repayable at Par, Discount and Premium -Issue of Bonus Shares - Buyback of Shares - (including problems).

UNIT III:

Valuation of Goodwill: Need and Methods - Average Profit Method, Super Profits Method – Capitalization Method and Annuity Method (Including problems).

UNIT IV:

Valuation Shares: Need for Valuation - Methods of Valuation - Net Assets Method, Yield Basis Method, Fair Value Method (including problems).

UNIT V:

Company Final Accounts: Provisions of the Companies Act, 2013 - Preparation of Final Accounts – Adjustments Relating to Preparation of Final Accounts – Profit and Loss Account and Balance Sheet – (including problems with simple adjustments).

REFERENCE BOOKS:

1. Corporate Accounting – T.S Reddy and Murthy, MarghamPublications, Chennai.
2. Advanced Accounts: M C Shukla, T S Grewal and S C Gupta, S Chand Publications
3. Corporate Accounting – Haneef & Mukherji, Tata McGraw Hill Publications.
4. Corporate Accounting – RL Gupta & Radha Swami,Sultan Chand & sons
5. Corporate Accounting – P.C. Tulsian, S.Chand Publishers
6. Advanced Accountancy: Jain and Narang,,Kalyani Publishers
7. Advanced Accountancy: R.L. Gupta and M.Radhaswamy, S Chand.
8. Advanced Accountancy :Chakraborthy, Vikas Publishers
9. Corporate Accounting: S.N. Maheswari, S.K. Maheswari, Vikas Publishing House.
10. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand & Company
11. Corporate Accounting: Umamaheswara Rao, Kalyani Publishers
12. Corporate Accounting: Dr ChandaSrinivas, SevenHills International Publishers,
13. Advanced Accountancy: Arulanandam& Raman, Himalaya Publishing House.

Suggested Co-Curricular Activities:

- Assignments and Problem Solving Exercises.
- Collect and fill the share application form of a limited Company.
- Collect Prospectus of a company and identify its salient features.
- Collect annual report of a Company and List out its assets and Liabilities.
- Collect the annual reports of company and calculate the value of goodwill under different methods.
- Power point presentations on types of shares and share capital.
- Group Discussions on problems relating to topics covered by syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
Taxation & Accounting
Course 4A: Corporate Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Forfeiture of Shares
2. Buyback of shares
3. Annuity Method of Goodwill
4. Fair value method
5. Companies Act, 2013
6. Equity Share Capital
7. Dividend
8. Goodwill

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) X Ltd. Forfeited 100 equity shares of Rs. 10 each held by Rooldu Ram on 15th December, 2015 for non-payment of First Call of Rs. 2 per share and the final call of Rs. 3 per share. These shares were re-issued to Mohan on 25th December 2015 at a discount of Rs. 3.50 per share. Pass journal entries.

(OR)

b) What are the advantages of Equity Share Capital and Preference Share Capital?

10. a) Explain the major sources where from the debentures can be redeemed.

(OR)

b) What is the purpose of issue of bonus shares? What are the conditions which have to be fulfilled while making such an issue?

11. a) RG and MK are the partners in the firm. Their capitals are 3, 00,000 and 2,00,000. During the year ended 31st March, 2010 the firm earned a profit of 1,50,000. Assuming that the normal rate of return is 20%. Calculate the value of goodwill of the firm:
    1. By capitalization method
    2. By super profit method if the goodwill is valued at 2 years purchase of super profit.

(OR)

b) Define goodwill. When may the need for evaluating goodwill arise in the case of a joint stock company?

12. a) Explain need for valuation and methods of valuation.

(OR)

b) From the following Balance Sheet of Sweetex Ltd. you are asked to-ascertain the value of each Equity Share of the company:

Liabilities	**Amount Rs.**		**Assets**	**Amount Rs.**
20,000 Equity Shares Rs. 10 each, fully paid		20,000	Good Will	30,000
1000, 6%Preference Shares of Rs.100 each, fully paid		1,00,000	Land And Building	1,00,000
Reserves	60,000		Plant and Machinery	1,20,000
Sundry Creditors	40,000		Investment(At Cost)	60,000
Provision for Taxation	20,000		Stock	50,000
Other Liabilities	10,000		Debtors	40,000
			Cash at Bank	24,000
			Preliminary Expenses	6,000
	4,30,000			**4,30,000**

For the purpose of valuing the shares of the company, the assets were revalued as: Goodwill Rs. 50,000; Land and Building at cost plus 50%, Plant and Machinery Rs. 1, 00,000; Investments at book values; Stock Rs. 80,000 and Debtors at book value, less 10%.

13.a) A limited company has an authorized capital of Rs.1,000,000 divided into 60,000 equity shares of Rs.10 each and 4,000, 10% preference shares of Rs.100 each out of which 50,000 equity share and 3,000 preference share were issued and fully paid up. The profit for the year 2019 being the first year of operation amounted to Rs.1,80,000 after income tax. The directors decided to declare a dividend of 22% on the equity share capital after.

i. Statutory minimum requirement transfer to general reserve

ii. Provision of dividend on preference shares.

Prepare profit and loss appropriation account and show liabilities side of the balance sheet.

(OR)

b) What are the salient features and provisions of Companies Act, 2013.

B.Com	Semester: IV	Credits: 4
Course: 4B	COST AND MANAGEMENT ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand various costing methods and management techniques.
- Apply Cost and Management accounting methods for both manufacturing and service industry.
- Prepare cost sheet, quotations, and tenders to organization for different works.
- Analyze cost-volume-profit techniques to determine optimal managerial decisions.
- Compare and contrast the financial statements of firms and interpret the results.
- Prepare analysis of various special decisions, using relevant management techniques.

UNIT I:

Introduction: Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Management Accounting: Features – Objectives – Functions –
Elements of Cost - Preparation of Cost Sheet (including problems)

UNIT II:

Material and Labour Cost: Techniques of Inventory Control – Valuation of Material Issues: FIFO - LIFO - Simple and Weighted Average Methods. Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages- Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowan Methods and Taylor Methods only(including problems)

UNIT III:

Job Costing and Batch Costing: Definition and Features of Job Costing – Economic Batch Quantity (EBQ) – Preparation of Job Cost Sheet – Problems on Job Cost Sheet and Batch Costing(including problems)

UNIT IV:

Financial Statement Analysis and Interpretation:Financial Statements - Features, Limitations. Need, Meaning, Objectives, and Process of Financial Statement Analysis- Comparative Analysis – Common Size Analysis and Trend Analysis (including problems)

UNIT V:

Marginal Costing: Meaning and Features of Marginal Costing – Contribution –Profit Volume Ratio- Break Even Point – Margin of Safety – Estimation of Profit and Estimation of Sales(including problems).

REFERENCES BOOKS:

1. S.P. Jain and K.L. Narang – Advanced Cost Accounting, Kalyani Publishers.
2. M.N. Arora – A test book of Cost Accounting, Vikas Publishing House Pvt. Ltd.
3. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons.
4. Nigam & Sharma – Cost Accounting Principles and Applications, S.Chand& Sons.
5. S.N. Maheswari– Principles of Management Accounting, Sultan Chand & Sons.
6. I.M.Pandey – Management Accounting, Vikas Publishing House Pvt. Ltd.
7. Sharma & Shashi Gupta – Management Accounting, Kalyani Publishers.
8. Murthy & Guruswamy – Management Accounting, Tata McGraw Hill, New Delhi.
9. S.P. Gupta – Management Accounting, S. Chand Publishing, New Delhi.
10. Umamaheswara Rao and Ranganath, Cost Accounting, Kalyani Publishers.
11. Dr V Murali Krishna – Cost Accounting, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Debate on methods of payments of wages.
- Seminars and Problem Solving Exercises .
- Seminar on need and importance of financial statement analysis.
- Graphs showing the breakeven point analysis.
- Identification of elements of cost in services sector by Visiting any service firm
- Cost estimation for the making of a proposed product.
- Listing of industries located in your area and methods of costing adopted by them.
- Collection of financial statements of any two organization for two years and prepare a common Size Statements. Collection of cost sheet and pro-forma of quotation.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
Taxation & Accounting
Course 4B: Cost And Management Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Elements of Cost
2. Time Rate Method
3. EBQ
4. Trend Analysis
5. Profit Volume Ratio
6. Job Costing
7. Cost Sheet
8. Inventory Control

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Cost Accounting. Briefly explain the objectives and functions of Cost Accounting.

(OR)

b) Distinguish between Cost Accounting and Management Accounting

10. a) From the following details write Store Ledger under simple average method:

2006			
DEC	1	Opening Balance	100Kg @ Rs. 5.00
"	5	Received	50Kg @ Rs. 5.20
"	8	Issued	120Kg
"	10	Issued	10Kg
"	15	Received	80Kg @ Rs. 5.40
"	18	Issued	50Kg
"	20	Received	100Kg @ Rs. 5.60
"	25	Issued	40Kg
"	29	Issued	60Kg

The stock verifier found a shortage of 10 kg. on 16.12.06 and another shortage of 10 kg on 26.12.06.

(OR)

b) Define 'Labour Turnover'. How is it measured? Explain.

11. a) Distinguish between Job costing and batch costing.

(OR)

b) Annual demand for a component is 30,000 units. Cost of set-up per batch is Rs.600. Inventory carrying cost per unit per annum is Rs.1. (i) Calculate the total cost assuming batch size of 4,000 units, 5,000 units, 6,000 units, 7,000 units, 8,000 units, 9,000 units and 10,000 units. Also find the economic batch quantity. (ii) Using mathematical formula calculate economic batch quantity.

12. a) Define financial statement analysis. Explain the objectives and process of financial statement analysis.

(OR)

b) Briefly explain comparative analysis and common-size analysis.

13. a) Define Marginal Costing. Explain the features and importance of marginal costing.

(OR)

b) From the following data, you are required to calculate:

(i) P/V ratio

(ii) Break-even sales with the help of P/V ratio.

(iii) Sales required to earn a profit of Rs. 4,50,000

Fixed Expenses = Rs. 90,000
Variable Cost per unit:
Direct Material = Rs. 5
Direct Labour = Rs. 2
Direct Overheads = 100% of Direct Labour
Selling Price per unit = Rs. 12.

B.Com	Semester: IV	Credits: 4
Course: 4C	ASSESSMENT OF INDIVIDUALS, HUF AND PARTNERSHIP	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning
- Understand the provisions and compute income tax for various sources
- Grasp amendments made from time to time in Finance Act
- Compute total income and define tax complicacies and structure and Prepare and File IT returns of individual at his own.

Unit-I:

Assessment of Individual Incomes: Computations of total Income of individuals and tax liability. Rates of income tax.

Unit-II:

Assessment of Tax of HUF: Computations of Gross total Incomes and total income of Hindu Undivided Family. Rates of Income tax.

Unit-III:

Assessment of Tax of AOP / BOI / Societies and Trusts: Computations of Gross total Incomes, taxable Income, Tax liability of Societies, Trusts and Association of Persons.

Unit-IV:

Assessment of Tax of Partnership: Computations of Gross total Incomes and total income of Partnership firm. Deductions U/S 80.

Unit-V:

TDS and TCS Provisions: Tax Deducted at Source and Tax Collected at Soures – Rates – Applicability simple problems

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

Suggested Co-Curricular Activities:

- Seminar on different topics of Income tax and Quiz programs, also Problem Solving Exercises.
- Debate on Tax Evasion and Avoidance.
- Practice of provisions of Taxation.
- Talk on Finance Bill at the time of Union Budget.
- Guest lecture by Chartered Accountant.
- Presentation of tax rates and Practice of filing IT Returns online.
- Group Discussions on problems relating to topics covered by syllabus.
- Examinations (Scheduled and surprise tests)

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
Taxation & Accounting
Course 4C: Assessment of Individuals, HUF AND Partnership

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Clubbing of income
2. HUF
3. Partial partition
4. Association of persons
5. Charitable Trust
6. TDS
7. Meaning of firm
8. Total Income

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Briefly explain the deductions U/S 80.

(OR)

b) What is the procedure for computation of total income with examples?

10. a) Explain the steps involved in the computation of total income of HUF.

(OR)

b) How do you assess income after partition of a HUF

11. a) Explain the methods of computing a member's share in the income of APO.

(OR)

b) XYZ Consumer Co-operative society furnishes the following particulars of its income in respect of year. You are required to work out the taxable income of the co-operative society.

	Rs.	Rs.
Income from business		2,50,000
Interest on deposits with bank		10,000
Dividend on investments:		
Investments in share of other Co-operative societies	4,000	
Other investments	4,000	8,000
Income from letting of godowns for storage of commodities		20,000

12. a) Section 40(b) a firm comprising of four Partners A,B,C and D carrying on business in partnership, sharing profits and losses equally shows a profit of Rs.1,00,000 in its books after deduction of the following amounts for the year

a. Remuneration to partner A, who is not actively engaged in business	48,000
b. Remuneration to partner B and C actively engaged in business	
Partner B	60,000
Partner C	72,000
c. Interest on partner D on loan of Rs. 2,25,000	36,000

The deed of partnership provides for the payment of above remuneration and interest to partners. You are required to work out the taxable income of the firm as well as partners.

(OR)

b) A partnership firm, consisting of three partners A,b and C was engaged in the business of Civil construction and received the following amounts by way of contract receipts :

Contract work for supply of labour	30,00,000
Value of materials supplies by Government	8,00,000
Total value of contract	38,00,000

Each partner of the firm was entitled to draw Rs.2,500 per month by way of salary as authorised by the terms of the partnership deed. Interest of Rs. 1,00,000 was also paid to partner C on the capital of Rs.5,00,000 contributed by him. The profit as per books of accounts, before deduction of salary to partners and interest to C amounted to Rs.2,50,000. Compute the total income of the firm, applying the provisions of Section 44AD.

13.a) How is TDS different from TCS.

(OR)

b) What are the important rates of TDS?

B.Com	Semester: IV	Credits: 4
Course: 4D	BUSINESS LAW	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the legal environment of business and laws of business.
- Highlight the security aspects in the present cyber-crime scenario.
- Apply basic legal knowledge to business transactions.
- Understand the various provisions of Company Law.
- Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade.

UNIT I:

Contract: Meaning and Definition of Contract - Essential Elements of Valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872

UNIT II:

Offer, Acceptance and Consideration: Definition of Valid Offer, Acceptance and Consideration - Essential Elements of a Valid Offer, Acceptance and Consideration.

UNIT III:

Capacity of the Parties and Contingent Contract:

Rules Regarding to Minors Contracts - Rules Relating to Contingent Contracts - Different Modes of Discharge of Contracts - Rules Relating to Remedies to Breach of Contract.

UNIT IV:

Sale of Goods Act 1930 and Consumer Protection Act 2019:

Contract of Sale - Sale and Agreement to Sell - Implied Conditions and Warranties - Rights of Unpaid Vendor- Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Mechanism.

UNIT V:

Cyber Law: Overview and Need for Cyber Law - Contract Procedures - Digital Signature-Safety Mechanisms.

REFERENCES BOOKS:

1. J. Jaysankar, Business Laws, Margham Publication. Chennai.
2. ND Kapoor, Business Laws, S Chand Publications.
3. Balachandram V, Business law, Tata McGraw Hill.
4. Tulsian, Business Law, Tata McGraw Hill.
5. Pillai Bhagavathi, Business Law,SChand Publications.
6. Business Law, Seven Hills Publishers, Hyderabad.
7. K C Garg, Business Law, Kalyani Publishers.

Suggested Co-Curricular Activities:

- Seminar on Basics of Indian Contract Act,1872.
- Quiz programs.
- Co-operative learning.
- Seminar on Cyber Law.
- Group Discussions.
- Debate on Offer, Agreement, and Contract.
- Creation of Contract by abiding rules of Indian Contract Act,1872.
- Making a sale by abiding rules of Sale of Goods Act,1930.
- Guest lecture by a Lawyer/Police officer.
- Celebrating consumers day by creating awareness among the students.
- Examinations (Scheduled and surprise tests) .
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
Taxation & Accounting
Course 4D: Business Law

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Agreement
2. Acceptance
3. Minor
4. Unpaid Vendor
5. Digital Signature
6. Breach of Contract
7. Unsound Mind
8. Consumer

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) "All contracts are agreements but all agreements are not contract"…Explain.

(OR)

b) What are the salient features and classification of contracts under Indian Contact Act, 1872.

10. a) What are the essentials of consideration?

(OR)

b) What is offer and Invitation to offer?

11. a) Briefly explain various modes of discharge of contract.

(OR)

b) Explain the rules relating to contingent contracts.

.

12. a) What are the salient features and contents of Sale of Goods Act, 1930?

(OR)

b) Explain the rights of a consumer under Consumer Protection Act, 2019.

13. a) Explain an overview and need for Cyber Law.

(OR)

b) What is contract procedures and safety mechanism for Cyber Laws.

B.Com	Semester: IV	Credits: 4
Course: 4E	AUDITING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understanding the meaning and necessity of audit in modern era.
- Comprehend the role of auditor in avoiding the corporate frauds.
- Identify the steps involved in performing audit process.
- Determine the appropriate audit report for a given audit situation.
- Apply auditing practices to different types of business entities.
- Plan an audit by considering concepts of evidence, risk and materiality

UNIT I:

Introduction: Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing - Accounting vs Auditing – Role of Auditor in Checking Corporate Frauds.

UNIT II:

Types of Audit: Based on Ownership, Time and Objective - Independent, Financial, Internal, Cost,Tax, Government, Secretarial Audits

UNIT III:

Planning of Audit: Steps to be taken at the Commencement of a New Audit – Audit Programme - Audit Note Book– Audit Working Courses - Audit Evidence - Internal Check, Internal Audit and Internal Control.

UNIT IV:

Vouching and Investigation: Definition and Importance of Vouching – Objectives of Vouching - Vouching of Cash and Trading Transactions – Investigation - Auditing vs. Investigation

UNIT V:

Company Audit and Auditors Report: Auditor's Qualifications – Appointment andReappointment – Rights, Duties, Liabilities and Disqualifications - Audit Report: Contents –Preparation - Relevant Provisions of Companies Act, 2013.

REFERENCESBOOKS:

1. S.Vengadamani, “Practical Auditing”, Margham Publications, Chennai.
2. Ghatalia, “Principles of Auditing”, Allied Publishers Pvt. Ltd., New Delhi.
3. Pradeesh Kumar, BaldevSachdeva&Jagwant Singh, “Auditing Theory and Practice, Kalyani Publications
4. N.D. Kapoor, “Auditing”, S Chand, New Delhi.
5. R.G. Saxena, “Principles and Practice of Auditing”, Himalaya Publishing House New Delhi
6. JagadeshPrakesh, “Principles and Practices of Auditing”, Kalyani Publications
7. Kamal Gupta and Ashok Gupta, “Fundamentals of Auditing”, Tata McGraw Hill
8. B.N. Tondan, “Practical Auditing”, S.Chand, New Delhi.
9. K J Vijaya Lakshmi & A S Roopa, Auditing, Seven Hills International Publishers, Hyderabad

Suggested Co-Curricular Activities:

- Seminars.
- Visit the audit firms.
- Visit an audit firm, write about the procedure followed by them in Auditing the books of accounts of a firm.
- Guest lecture by an auditor.
- Collect the information about types of audit conducted in any one Organization.
- Collection of audit reports and Group Discussions.
- Draft an audit program.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
Taxation & Accounting
Course 4E: Auditing

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Book Keeping Vs Auditing
2. Government Audit
3. Audit Note Book
4. Investigation
5. Audit Report
6. Internal Check
7. Cost Audit
8. Vouching

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) What are the objectives and importance of auditing?

(OR)

b) Explain the role and responsibilities of auditor in checking corporate frauds.

10. a) Briefly explain various types of audit.

(OR)

b) Explain the merits and demerits of Financial Audit and Internal Audit.

11. a) What are the steps to be taken at the commencement of a New Audit?

(OR)

b) Define Internal Control. Why to have internal control? Explain the elements of a good system of Internal Control.

12. a) What are the basic objectives and functions of Vouching?

(OR)

b) Distinguish between Auditing and Investigation.

13. a) Briefly explain the rights and duties of Auditors.

(OR)

b) State the provisions of the Companies Act, 2013 regarding qualification, appointment and removal of auditors.

B.Com	Semester: IV	Credits: 4
Course: 4F	GOODS AND SERVICES TAXES	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the basic principles underlying the Indirect Taxation Statutes.
- Examine the method of tax credit. Input and Output Tax credit and Cross Utilisation of Input Tax Credit.
- Identify and analyze the procedural aspects under different applicable statutes related to GST.
- Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.
- Develop various GST Returns and reports for business transactions in Tally.

UNIT I: Introduction: Overview of GST - Concepts –Taxes Subsumed under GST – Components of GST- GST Council- Advantages of GST-GST Registration.

UNIT II: GST Principles –Vijay Kelkar Sha Committee Recommendations - Comprehensive Structure of GST Model in India: Single, Dual GST – GST Rates - Taxes Exempted from GST- Taxes and Duties outside the purview of GST- Taxation of Services

UNIT III: Tax Invoice- Bill of Supply-Transactions Covered under GST-Composition Scheme- Reverse Charge Mechanism- Composite Supply -Mixed Supply.

UNIT IV: Time of Supply of Goods & Services: Value of Supply - Input Tax Credit - Distribution of Credit -Matching of Input Tax Credit - Availability of Credit in Special Circumstances- Cross utilization of ITC between the Central GST and the State GST.

UNIT V: GST Returns: Regular Monthly Filing Returns-Composition Quarterly Filing Returns-GSTR-1, GSTR-2, GSTR 2A, GSTR-3, GSTR 3B -Annual Returns GSTR-9, GSTR 9A, GSTR 9B& GSTR 9C - Records to be Maintained under GST.

REFERENCES BOOKS:

1. T. S. Reddy and Dr. Y. Hari Prasad Reddy, Business Taxation (Goods and Services Taxes),Margham Publications.
2. Taxmann's Basics of GST.
3. Taxmann's GST: A practical Approach.
4. Theory & Practice of GST, Srivathsala, Himalaya Publishing House.
5. Goods and Services Tax in India - Notifications on different dates. GST Bill 2012.
6. Background Material on Model GST Law, Sahitya Bhawan Publications.
7. The Central Goods and Services Tax Act, 2017, No. 12 of 2017 Published by Authority.
8. Ministry of Law and Justice, New Delhi, the 12thApril, 2017.
9. Theory & Practice of GST: Dr. Ravi M.N, BPB Publications.

Suggested Co-Curricular Activities :

- Seminars.
- Show the flow chart of GST Suvidha Provider (GST).
- Practice of Terminology of Goods and Service Tax.
- Prepare chart showing rates of GST.
- Follow GST Council meeting updates regularly.
- Creation of GST Vouchers and Tax invoices.
- Visit a Tax firm (Individual and Group).
- Guest lecture by GST official.
- Prepare Tax invoice under the GST Act.
- Practice on how to file a Returns.
- Debate on Single GS, Dual GST.
- Group Discussions on Goods and Services outside the Purview of GST

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
Taxation & Accounting
Course 4F: Goods And Services Taxes

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any FIVE of the following: **5X5=25M**

1. GST council
2. GST rates
3. Tax invoice
4. State GST
5. GSTR 9 A
6. Input Tax Credit
7. Scope of GST
8. GST return

Section- B

Answer **FIVE** questions. **5x10=50M**

9. a) Explain overview of GST.

(OR)

b) What are the advantages and limitations of GST?

10. a) Elaborate the comprehensive structure of GST Model in India.

(OR)

b) Briefly explain taxes exempted from GST and Duties outside the purview of GST.

11. a) Explain various steps involved in the process of registration for GST? List various types of returns used in GST.

(OR)

b) Discuss in detail the GST Valuation Rules with suitable example.

12. a) What is input tax credit? Explain various provisions to claim credit under GST and its utilization.

(OR)

b) Discuss in detail the rules for determining place of supply under GST.

13.a) In what situations refund can be claimed under GST? What is ine procedure for claiming refund under GST?

(OR)

b) Explain the records maintained under GST.

UG PROGRAM (4 Years Honors)
CBCS-2020-21

B.A / B.Sc
MATHEMATICS

Syllabus and Model Question Papers

TABLE OF CONTENTS

S. No	Particulars	Page No.
1	Resolutions of the BOS	1
2	Details of Course titles & Credits	4
	a. Proposed combination subjects:	4
	b. Student eligibility for joining in the course:	4
	c. Faculty eligibility for teaching the course	4
	d. List of Proposed Skill enhancement courses with syllabus, if any	4
	e. Any newly proposed Skill development/Life skill courses withdraft syllabus and required resources	4
	f. Required instruments/software/ computers for the course	4
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	5
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	5
	i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent	5
3	Program objectives, outcomes, co-curricular and assessment methods	6
4	Details of course-wise syllabus for Theory and Lab	7
5	Model Question Courses for Theory and Lab	13(17)
6	Details of Syllabus on Skill Enhancement courses and Model Question Courses for Theory and Lab	

1. Resolutions of the Board of Studies

Meeting held on:…22-1-2021…….Time:10 am At: Convention centre,
Adikavi Nannayya university,Rajahmundry

Agenda: Finalising the revised syllabus of UG Mathematics under CBCS frame work with effect from 2020-021.

Members present:
1. Dr.D.Chitti Babu, Convenor
2. Dr.D.Ch. Papa Rao, Member
3. Sri G.Sridhar, Member
4. Dr.K.Revathi, Coordinator

Resolutions:
After reviewing the existing titles and contents of classes I,II,III and IV framed by APSCHE, The board come out with the following resolutions.

Resolution-1
It is resolved to approve the following changes of courses I,II,III and IV of mathematics as it is given by APSCHE.

COURSE I:
1. Change of variables topic is deleted in Unit-I.
2. Orthogonal trajectories and equations that do not contain x or y topics are deleted in Unit-II.
3. Linear differential equations with non-constant coefficients is restricted to one Method only i.e. when part of C.F. is known.

COURSE II:
1. Simplified form of the equations of two spheres topic is deleted in Unit-IV
2. Limiting points topic is added in Unit IV.

COURSE III:
1. Homomorphism topic is shifted from Unit-III Unit-IV.
2. Cyclic groups topic is deleted in Unit-IV
3. Ideals topic is deleted in Unit-IV

COURSE IV:
1. Bolzano-Weierstrass theorem topic is deleted in Unit-I
2. Absolute convergence and conditional convergence topics are deleted in Unit-II
3. Uniform continuity topic is deleted in Unit-III.
4. Integral as the limit of a sum and mean value theorems topic is changed to first mean value theorem in Unit-V.

COURSE V:
1. Matrices, elementary properties, Inverse matrix, Rank of a matrix are deleted in Unit-IV

Resolution 2.
It is resolved to approve the necessary changes in Blue print and model Courses of Courses I, II, III and IV. The Course setters should strictly follow the prescribed book and model Courses

2. DETAILS OF PAPER TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./ Week (Arts/ Commeerc 4+2 and Science: 4+2)	Credits (Arts/ Commeerce: 4+1 & Science: 4+1)	Max. Marks Cont/ Internal/ Mid Assessment	Max. Marks Sem-end Exam
I	I	Differential Equations	T and P	6	5	25	75
II	II	Three dimensional Analytical Solid Geometry	T and P	6	5	25	75
III	III	Abstract Algebra	T and P	6	5	25	75
IV	IV	Real Analysis	T and P	6	5	25	75
	V	Linear Algenra	T and P	6	5	25	75
V	-	-	-	-	-	-	
	-	-	-	-	-	-	

Note: *Course type code: T: Theory, L: Lab, P: Problemsolving

a. Proposed combination subjects: NIL
b. Student eligibility for joining in the course: NIL
c. Faculty eligibility for teaching the course NIL
d. List of Proposed Skill enhancement courses with syllabus, if any NIL
e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resourcesNIL

f. Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., fora batch of 15 students)

Sem. No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
1	Lab Name:	-	-	-
2	Lab Name:	--	-	-

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations

Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
-	-	-	-	-
-	-	-	-	-

h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects

S.No	Company/ Govt organization	Position type	Level of Position			
-	-	-	-	-	-	-
-	-	-	-	-	-	-

i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent NIL.

3.Program objectives, outcomes, co-curricular and assessment methods

BSc/BA	MATHEMATICS

1. Aim and objectives of UG program in Subject: MATHEMATICS In this course UG program, student will learn the higher mathematics topics to enable to learn and solve problems in different fields.

2. Learning outcomes of Subject (in consonance with the Bloom's Taxonomy):

After successful completion of the course, the student will be able to

1. Solving linear differential equations.
2. Understand the concept and apply appropriate methods for solving differential equations.
3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work NIL
4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

A. Measurable:

1. Assignments on: different topics of the subject.
2. Student seminars (Individual presentation of Courses) on topics relating to:Mathematics subject.
3. Quiz Programmes on: different units of the course .
4. Individual Field Studies/projects: study projects in different fields
5. Group discussion on: nil
6. Group/Team Projects on: nil

B. General

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus. Yes
2. Group Discussions on: different areas of the subject
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers Yes
4. Any similar activities with imaginative thinking. Nil
5. Recommended Continuous Assessment methods:

   Thorough Assignments and seminars on different areas of the course and problem solving sessions in various unit of the course.

4. Details of course-wise Syllabus

DETAILS OF COURSE-WISE SYLLABUS

B.A/ B.Sc	Semester-I	Credits:4
Course:1	DIFFERENTIAL EQUATIONS	Hrs/Weak:5

Course Outcomes:

After successful completion of this course, the student will be able to;

- Solve linear differential equations
- Convert non exact homogeneous equations to exact differential equations by using integrating factors
- Know the methods of finding solutions of differential equations of the first order but not of the first Degree.
- Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.
- Understand the concept and apply appropriate methods for solving differential equations.

UNIT I: (12 Hours)

Differential Equations of first order and first degree:

Linear Differential Equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors.

UNIT II: (12 Hours)

Differential Equations of first order but not of the first degree:

Equations solvable for p; Equations solvable for y; Equations solvable for x; Equations homogeneous in x and y; Equations of the first degree in x and y – Clairaut's Equation.

UNIT III: (12 Hours)

Higher order linear differential equations-I:

Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators. General Solution of f(D)y=0.

General Solution of f(D)y=Q when Q is a function 1/f(D) is expressed as partial fractions of x,

P.I. of f(D)y = Q when Q= be^{ax}

P.I. of f(D)y = Q when Q is bsin ax or b cos ax.

UNIT IV: (12 Hours)

Higher order linear differential equations-II:

Solution of the non-homogeneous linear differential equations with constant coefficients.

P.I. of f(D)y = Q when Q= bx^k

P.I. of f(D)y = Q when Q= e^{ax} V **,** where V is a function of x.

P.I. of f(D)y = Q when Q= xV **,** where V is a function of x.

P.I. of f(D)y = Q when Q= x^mV **,** where V is a function of x.

UNIT V: (12 Hours)

Higher order linear differential equations-III :

Method of variation of parameters; Linear differential Equations with non-constant coefficients(Solution when a part of CF is known method only); The Cauchy-Euler Equation, Legendre's linear equations.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Applications of Differential Equations to Real life Problem /Problem Solving.

TEXT BOOK :

1. Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall of India Pvt. Ltd, New Delhi-Second edition.

REFERENCE BOOKS :

1. A text book of Mathematics for B.A/B.Sc, Vol 1, by N. Krishna Murthy & others, published by S.Chand & Company, New Delhi.
2. Ordinary and Partial Differential Equations by Dr. M.D,Raisinghania, published by S. Chand & Company, New Delhi.
3. Differential Equations with applications and programs – S. Balachandra Rao & HR Anuradha Universities Press.
4. Differential Equations -Srinivas Vangala & Madhu Rajesh, published by Spectrum University Press.

B.A/ B.Sc	Semester-II	Credits:4
Course:2	THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY	Hrs/Weak:5

Course Outcomes:

After successful completion of this course, the student will be able to;

1. get the knowledge of planes.
2. basic idea of lines, sphere and cones.
3. understand the properties of planes, lines, spheres and cones.
4. express the problems geometrically and then to get the solution.

UNIT I: (12hrrs)

The Plane: Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane.

UNIT II: (12 hrs)

The Line :Equation of a line; Angle between a line and a plane; The condition that a given line may lie in a given plane; The condition that two given lines are coplanar; Number of arbitrary constants in the equations of straight line; Sets of conditions which determine a line; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line.

UNIT III: (12 hrs)

The Sphere :Definition and equation of the sphere; Equation of the sphere through four given points; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle;
Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;

UNIT IV: (12 hrs)

The Sphere and Cones : Angle of intersection of two spheres; Conditions for two spheres to be orthogonal; Radical plane; Coaxial system of spheres. Limiting Points.
Definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; equations of cones with vertex at origin are homogenous; Condition that the general equation of the second degree should represent a cone;

UNIT V: **(**12 hrs)

Cones :Enveloping cone of a sphere; right circular cone: equation of the right circular cone with a given vertex, axis and semi vertical angle: Condition that a cone may have three mutually perpendicular generators; intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; Condition that a plane may touch a cone; Reciprocal cones; Intersection of two cones with a common vertex.

Co-Curricular Activities 15 Hours)

Seminar/ Quiz/ Assignments/Three dimensional analytical Solid geometry and its applications/ Problem Solving.

TEXT BOOK :

1. Analytical Solid Geometry by Shanti Narayan and P.K. Mittal, published by S. Chand & Company Ltd. 7th Edition.

REFERENCE BOOKS :

1. A text book of Mathematics for BA/B.Sc Vol 1, by V Krishna Murthy & Others, published by S. Chand & Company, New Delhi.
2. A text Book of Analytical Geometry of Three Dimensions, by P.K. Jain and Khaleel Ahmed, published by Wiley Eastern Ltd., 1999.
3. Co-ordinate Geometry of two and three dimensions by P. Balasubrahmanyam, K.Y. Subrahmanyam, G.R. Venkataraman published by Tata-MC Gran-Hill Publishers Company Ltd., New Delhi.
4. Solid Geometry by B.Rama Bhupal Reddy, published by Spectrum University Press.

B.A/ B.Sc	Semester-III	Credits:4
Course:3	ABSTRACT ALGEBRA	Hrs/Weak:5

Course Outcomes:

After successful completion of this course, the student will be able to;

- acquire the basic knowledge and structure of groups, subgroups and cyclic groups.
- get the significance of the notation of a normal subgroups.
- get the behavior of permutations and operations on them.
- study the homomorphisms and isomorphisms with applications.
- Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.
- Understand the applications of ring theory in various fields.

UNIT I: (12 Hours)

GROUPS : Binary Operation – Algebraic structure – semi group-monoid – Group definition and elementary properties Finite and Infinite groups – examples – order of a group, Composition tables with examples.

UNIT II: (12 Hours)

SUBGROUP: Complex Definition – Multiplication of two complexes Inverse of a complex-Subgroup definition- examples-criterion for a complex to be a subgroups. Criterion for the product of two subgroups to be a subgroup-union and Intersection of subgroups. **Co-sets and Lagrange's Theorem:** Cosets Definition – properties of Cosets–Index of a subgroups of a finite groups–Lagrange's Theorem.

UNIT III: (12 Hours)

NORMAL SUBGROUPS: Definition of normal subgroup – proper and improper normal subgroup– Hamilton group – criterion for a subgroup to be a normal subgroup – intersection of two normal subgroups – Sub group of index 2 is a normal sub group –quotient group – criteria for the existence of a quotient group.

UNIT IV: (12 Hours)

HOMOMORPHISM : Definition of homomorphism – Image of homomorphism elementary properties of homomorphism – Isomorphism – automorphism definitions and elementary properties–kernel of a homomorphism – fundamental theorem on Homomorphism and applications.

PERMUTATIONS: Definition of permutation – permutation multiplication – Inverse of a permutation – cyclic permutations – transposition – even and odd permutations – Cayley's theorem.

UNIT V: (12 Hours)

RINGSDefinition of Ring and basic properties, Boolean Rings, divisors of zero and cancellation laws Rings, Integral Domains, Division Ring and Fields, The characteristic of a ring - The characteristic of an Integral Domain, The characteristic of a Field. Sub Rings.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Group theory and its applications / Problem Solving.

TEXT BOOK :

1. A text book of Mathematics for B.A. / B.Sc. by B.V.S.S. SARMA and others, published by S.Chand & Company, New Delhi.

REFERENCE BOOKS :

1. Abstract Algebra by J.B. Fraleigh, Published by Narosa publishing house.
2. Modern Algebra by M.L. Khanna.
3. Rings and Linear Algebra by Pundir & Pundir, published by Pragathi Prakashan.

B.A/ B.Sc	Semester-IV	Credits:4
Course:4	MATHEMATICS REAL ANALYSIS	Hrs/Weak:5

Course Outcomes:

After successful completion of this course, the student will be able to

- get clear idea about the real numbers and real valued functions.
- obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.
- Test the continuity and differentiability and Riemann integration of a function.
- Know the geometrical interpretation of mean value theorems.

UNIT I: **(12 Hours)**

Introduction of Real Numbers (No question is to be set from this portion)

Real Sequences: Sequences and their limits, Range and Boundedness of Sequences, Limit of a sequence and Convergent sequence. The Cauchy's criterion, properly divergent sequences, Monotone sequences, Necessary and Sufficient condition for Convergence of Monotone Sequence, Limit Point of Sequence, Subsequences , Cauchy Sequences – Cauchy's general principle of convergence theorem.

UNIT II: **(12 Hours)**

INFINITIE SERIES :

Series : Introduction to series, convergence of series. Cauchy's general principle of convergence for series tests for convergence of series, Series of Non-Negative Terms.

1. P-test
2. Cauchy's n^{th} root test or Root Test.
3. D'-Alemberts' Test or Ratio Test.
4. Alternating Series – Leibnitz Test.

UNIT III: **(12 Hours)**

CONTINUITY:

Limits: Real valued Functions, Boundedness of a function, Limits of functions. Some extensions of the limit concept, Infinite Limits. Limits at infinity. (No question is to be set from this portion).

Continuous functions: Continuous functions, Combinations of continuous functions, Continuous Functions on interval.

UNIT IV: **(12 Hours)**

DIFFERENTIATION AND MEAN VALUE THEOREMS: The derivability of a function, on an interval, at a point, Derivability and continuity of a function, Graphical meaning of the Derivative, Mean value Theorems; Rolle's Theorem, Lagrange's Theorem, Cauchy's Mean value Theorem

UNIT V: **(12 Hours)**

RIEMANN INTEGRATION : Riemann Integral, Riemann integral functions, Darboux theorem. Necessary and sufficient condition for R – integrability, Properties of integrable functions, Fundamental theorem of integral calculus, First mean value Theorem.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Real Analysis and its applications / Problem Solving.

TEXT BOOK:

1. Introduction to Real Analysis by Robert G.Bartle and Donlad R. Sherbert, published by John Wiley.

REFERENCE BOOKS:

1. A Text Book of B.Sc Mathematics by B.V.S.S. Sarma and others, published by S. Chand & Company Pvt. Ltd., New Delhi.
2. Elements of Real Analysis as per UGC Syllabus by Shanthi Narayan and Dr. M.D. Raisinghania, published by S. Chand & Company Pvt. Ltd., New Delhi.

B.A/ B.Sc	Semester-IV	Credits:4
Course:5	LINEAR ALGEBRA	Hrs/Weak:5

Course Outcomes:

After successful completion of this course, the student will be able to;

- understand the concepts of vector spaces, subspaces, basises, dimension and their properties.
- understand the concepts of linear transformations and their properties
- apply Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods
- Learn the properties of inner product spaces and determine orthogonality in inner product spaces.

UNIT I: (12 Hours)

Vector Spaces-I: Vector Spaces, General properties of vector spaces, n-dimensional Vectors, addition and scalar multiplication of Vectors, internal and external composition, Null space, Vector subspaces, Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors, Linear span Linear independence and Linear dependence of Vectors.

UNIT II: (12 Hours)

Vector Spaces-II: Basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, Dimension of a subspace, Quotient space and Dimension of Quotient space.

UNIT III: (12 Hours)

Linear Transformations: Linear transformations, linear operators, Properties of L.T, sum and product of LTs, Range and null space of linear transformation, Rank and Nullity of linear transformations – Rank – Nullity Theorem.

UNIT IV: (12 Hours)

Matrix : Linear Equations, Characteristic equations, Characteristic Values & Vectors of square matrix, Cayley – Hamilton Theorem.

UNIT V: (12 Hours)

Inner product space : Inner product spaces, Euclidean and unitary spaces, Norm or length of a Vector, Schwartz inequality, Triangle Inequality, Parallelogram law, Orthogonality, Orthonormal set, Gram– Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity.

Co-Curricular Activities (15 Hours)

Seminar/ Quiz/ Assignments/ Linear algebra and its applications / Problem Solving.

TEXT BOOK:

1. Linear Algebra by J.N. Sharma and A.R. Vasista, published by Krishna Prakashan Mandir,Meerut- 250002.

REFERENCE BOOKS:

2. Matrices by Shanti Narayana, published by S.Chand Publications.
3. Linear Algebra by Kenneth Hoffman and Ray Kunze, published by Pearson Education (low priced edition), New Delhi.
4. Linear Algebra by Stephen H. Friedberg et. al. published by Prentice Hall of India Pvt. Ltd. 4th Edition, 2007.

BLUE PRINT FOR QUESTION PAPER PATTERN

COURSE-I, DIFFERENTIAL EQUATIONS

Unit	TOPIC	S.A.Q (including choice)	E.Q (including choice)	Total Marks
I	Differential Equations of 1^{st} order and 1^{st} Degree	2	2	30
II	Differential Equations of 1^{st} order but not of 1^{st} degree	1	2	25
III	Higher Order Linear Differential Equations (with constant coefficients) – I	2	2	30
IV	Higher Order Linear Differential Equations (with constant coefficients) – II	2	2	30
V	Higher Order Linear Differential Equations (with non constant coefficients)	1	2	25
TOTAL		8	1	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(W.e.f 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS

COURSE-I, DIFFERENTIAL EQUATIONS

MATHEMATICS MODEL PAPER

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks **5 X 5 M=25 M**

1. Solve $\left(1+e^{x/y}\right)dx+\ e^{x/y}\left(1-\frac{x}{y}\right)dy=0$
2. Solve $\left(y-e^{sin^{-1}x}\right)\frac{dx}{dy}+\sqrt{1-x^2}=0$
3. Solve sin px cos y = cos px siny + p.
4. Solve $[D^2-(a+b)D+ab]y=0$
5. Solve (D^2-3D+2) = cosh x
6. Solve $(D^2-4D+3)y$ = sin 3x cos 2x.
7. Solve $\frac{d^2y}{dx^2}-\ 6\ \frac{dy}{dx}+13\ y=8\ e^{3x}\sin 2x.$
8. Solve $x^2y''-2x(1+x)y'+2(1+x)y=x^3$

SECTION - B

Answer ALL the questions. Each question carries TEN marks. **5 X 10 M = 50 M**

9. (a) Solve $x\frac{dy}{dx}+y=y^2\log x.$

(Or)

(b) Solve $\left(y+\frac{y^3}{3}+\frac{x^2}{2}\right)dx+\frac{1}{4}(x+xy^2)dy=0$

10. (a) Solve $p^2+2pycotx=y^2.$

(Or)

(b) Solve $y+Px=\ P^2x^4$

11. (a) Solve$(D^3 + D^2 - D - 1)y = \cos 2x$.11

(OR)

(b) Solve $(D^2 - 3D + 2)y = \sin e^{-x}$.

12. (a) Solve $(D^2 - 2D + 4)y = 8(x^2 + e^{2x} + \sin 2x)$

(Or)

(b) Solve $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = xe^x \sin x$

13. (a) Solve $(D^2 - 2D)\ y = e^x \sin x$ by the method of variation of parameters.

(Or)

(b) Solve $3x^2\frac{d^2y}{dx^2} + x\frac{dy}{dx} + y = x$

BLUE PRINT FOR QUESTION PAPER PATTERN

COURSE-II, THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY

Unit	TOPIC	S.A.Q (including choice)	E.Q (including choice)	Total Marks
I	The Plane	2	2	30
II	The Right Line	2	2	30
III	The Sphere	2	2	30
IV	The Sphere & The Cone	1	2	25
V	The Cone	1	2	25
Total		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS

COURSE-II, THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY

Time: 3Hrs **Max.Marks:75 M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1. Find the equation of the plane through the point (-1,3,2) and perpendicular to the planes x+2y+2z=5 and 3x+3y+2z=8.
2. Find the bisecting plane of the acute angle between the planes 3x-2y-6z+2=0,-2x+y-2z-2=0.
3. Find the image of the point (2,-1,3) in the plane 3x-2y+z =9.
4. Show that the lines $2x + y - 4 = 0 = y + 2z$ and $x + 3z - 4 = 0$, $2x + 5z - 8 = 0$ are coplanar.
5. A variable plane passes through a fixed point (a, b, c). It meets the axes in A, B, C. Show that the centre of the sphere OABC lies on $ax^{-1}+by^{-1}+cz^{-1}=2$.
6. Show that the plane 2x-2y+z+12=0 touches the sphere $x^2+y^2+z^2-2x-4y+2z-3=0$ and find the point of contact.
7. Find the equation to the cone which passes through the three coordinate axes and the lines $\frac{x}{1} = \frac{y}{-2} = \frac{z}{3}$ *and* $\frac{x}{2} = \frac{y}{1} = \frac{z}{1}$
8. Find the equation of the enveloping cone of the sphere $x^2 + y^2 + z^2 + 2x - 2y = 2$ with its vertex at (1, 1, 1).

SECTION - B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9. (a) A plane meets the coordinate axes in A, B, C. If the centroid of ΔABC is (a,b,c), show that the Equation of the plane is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 3$.

(OR)

(b) A variable plane is at a constant distance p from the origin and meets the axes in A,B,C. Show that The locus of the centroid of the tetrahedron OABC is $x^{-2}+y^{-2}+z^{-2}=16p^{-2}$.

10. (a) Find the shortest distance between the lines $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$; $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}$.

(OR)

(b) Prove that the lines $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z-3}{4}$; $\frac{x-2}{3}=\frac{y-3}{4}=\frac{z-4}{5}$ are coplanar. Also find their point of intersection and the plane containing the lines.

11. (a) Show that the two circles $x^2+y^2+z^2-y+2z=0$, $x-y+z=2$; $x^2+y^2+z^2+x-3y+z-5=0$, $2x-y+4z-1=0$ lie on the same sphere and find its equation.

(OR)

(b) Find the equation of the sphere which touches the plane $3x+2y-z+2=0$ at $(1,-2,1)$ and cuts orthogonally The sphere $x^2+y^2+z^2-4x+6y+4=0$.

12. (a) Find the limiting points of the coaxial system of spheres $x^2+y^2+z^2-8x+2y-2z+32=0$, $x^2+y^2+z^2-7x+z+23=0$.

(OR)

(b) Find the equation to the cone with vertex is the origin and whose base curve is $x^2+y^2+z^2+2ux+d=0$.

13 (a) Prove that the equation $\sqrt{fx}\pm\sqrt{gy}\pm\sqrt{hz}=0$ represents a cone that touches the coordinate Planes and find its reciprocal cone.

(OR)

(b) Find the equation of the sphere $x^2+y^2+z^2-2x+4y-1=0$ having its generators parallel to the line $x=y=z$.

BLUE PRINT FOR QUESTION PAPER PATTERN

COURSE-III, ABSTRACT ALGEBRA

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	Groups	2	2	30
II	Subgroups, Cosets & Lagrange's theorem	1	2	25
III	Normal Subgroups	1	2	25
IV	Homomorphism and Permutations	2	2	30
V	Rings	2	2	30
Total		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM
(w.e.f. 2020-21 Admitted Batch)
B.A./B.Sc. MATHEMATICS
COURSE-III, ABSTRACT ALGEBRA

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1. Show that the set G=$\{x/x = 2^a 3^b \text{ and } a,b \in Z\}$ is a group under multiplication
2. Define order of an element. In a group G, prove that if $a \in G$ then $O(a) = O(a)^{-1}$.
3. If H and K are two subgroups of a group G, then prove that HK is a subgroup ⇔ HK=KH
4. If G is a group and H is a subgroup of index 2 in G then prove that H is a normal subgroup.
5. Examine whether the following permutations are even or odd

i) $\begin{pmatrix}1&2&3&4&5&6&7&8&9\\6&1&4&3&2&5&7&8&9\end{pmatrix}$ ii) $\begin{pmatrix}1&2&3&4&5&6&7\\3&2&4&5&6&7&1\end{pmatrix}$

6. If f is a homomorphism of a group G into a group G', then prove that the kernel of f is a normal of G.
7. Prove that the characteristic of an integral domain is either prime or zero.
8. Define a Boolean Ring and Prove that the Characteristic of a Boolean Ring is 2.

SECTION - B

Answer ALL the questions. Each question carries TEN marks. **5 X 10 M = 50 M**

9. a) Show that the set of n^{th} roots of unity forms an abelian group under multiplication.

(Or)

b) In a group G, for $a, b \in G$, O(a)=5, b ≠ e and $aba^{-1} = b^2$. Find O(b).

10. a) The Union of two subgroups is also a subgroup □ one is contained in the other.

(Or)

b) State and prove Langrage's theorem.

11. a) Prove that a subgroup H of a group G is a normal subgroup of G iff the product of two right cosets of H in G is again a right coset of H in G.

(Or)

b) Define Normal Subgroup. Prove that a subgroup H of a group G is normal iff $xHx^{-1} = H \; \forall \; x \in G$.

12. a) State and prove fundamental theorem of homomorphisms of groups.

(Or)

b) Let S_n be the symmetric group on n symbols and let A_n be the group of even permutations. Then show that A_n is normal in S_n and $O(A_n) = \frac{1}{2}(n!)$

13. a) Prove that every finite integral domain is a field.

(Or)

b) Let S be a non empty sub set of a ring R. Then prove that S is a sub ring of R if and only if a-b ∈ S and ab ∈ S for all a, b ∈ S.

BLUE PRINT FOR QUESTION PAPER PATTERN

COURSE-IV, REAL ANALYSIS

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	Real Sequence	1	2	25
II	Infinite Series	2	2	30
III	Limits and Continuity	1	2	25
IV	Differentiation and Mean Value Theorem	2	2	30
V	Riemann Integration	2	2	30
	TOTAL	8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM
(w.e.f. 2020-21 Admitted Batch)
B.A./B.Sc. MATHEMATICS
COURSE-IV, REAL ANALYSIS

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1. Prove that every convergent sequence is bounded.
2. Examine the convergence of $\frac{1}{1.2}-\frac{1}{3.4}+\frac{1}{5.6}-\frac{1}{7.8}+\cdots$
3. Test the convergence of the series $\sum_{n=1}^{\infty}(\sqrt[3]{n^3+1}-n)$.
4. Examine for continuity of the function *f* defined by $f(x)=|x|+|x-1|$ at x=0 and 1.
5. Show that $f(x)=x\sin\frac{1}{x},\ x\neq 0; f(x)=0, x=0$ is continuous but not derivable at x=0.
6. Verify Rolle's theorem for the function $f(x)=x^3-6x^2+11x-6$ on $[1,3]$.
7. If $f(x)=x^2\ \forall\ x\in[0,1]$ and $p=\{0,\frac{1}{4},\frac{2}{4},\frac{3}{4},1\}$ then find L(p, f) and U(p, f).
8. Prove that if $f:[a,b]\to R$ is continuous on [a, b] then f is R- integrable on [a, b].

SECTION –B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9. (a)If $s_n=1+\frac{1}{2!}+\frac{1}{3!}+-------+\frac{1}{n!}$ then show that $\{s_n\}$ converges.

(OR)

(b) State and prove Cauchy's general principle of convergence.

10. (a) State and Prove Cauchy's nth root test.

(OR)

(b) Test the convergence of $\sum\frac{x^n}{x^n+a^n}$ ($x>0, a>0$)

11. (a) Let f: R→ R be such that

$$f(x)=\frac{\sin(a+1)x+\sin x}{x} \text{ for } x<0$$

$$=c \text{ for } x=0$$

$$=\frac{(x+bx^2)^{1/2}-x^{1/2}}{bx^{3/2}} \text{ for } x>0$$

Determine the values of a, b, c for which the function f is continuous at x=0.

(OR)

(b) If f: [a, b] → R is continuous on [a, b] then prove that f is bounded on [a, b]

12. (a) Using Lagrange's theorem, show that $x > \log(1+x) > \frac{x}{(1+x)} \forall\, x > 0.$

(OR)

(b) State and prove Cauchy's mean value theorem...

13. (a) State and prove Riemman's necessary and sufficient condition for R- integrability.

(OR)

(b) Prove that $\frac{\pi^3}{24} \leq \int_0^{\pi} \frac{x^2}{5+3\cos x}\,dx \leq \frac{\pi^3}{6}$

BLUE PRINT FOR QUESTION PAPER PATTERN

COURSE-V, LINEAR ALGEBRA

Unit	TOPIC	S.A.Q (including choice)	E.Q (including choice)	Marks Allotted
I	Vector spaces - I	2	2	30
II	Vector spaces - II	1	2	25
III	Linear Transformation	2	2	30
IV	Matrices	1	2	25
V	Inner product spaces	2	2	30
Total		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM
(w.e.f. 2020-21 Admitted Batch) B.A./B.Sc.
MATHEMATICS
COURSE-V
LINEAR ALGEBRA

Time: 3Hrs **Max.Marks:75**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5M=25 M

1. Let p, q, r be fixed elements of a field F. Show that the set W of all triads (x, y, z) of elements of F, such that px+qy+rz=0 is a vector subspace of $V_3(R)$.
2. Define linearly independent &linearly dependent vectors in a vector space. If α, β, γ are linearly independent vectors of $V(R)$ then show that $\alpha+\beta, \beta+\gamma, \gamma+\alpha$ are also linearly independent.
3. Prove that every set of $(n+1)$ or more vectors in an n dimensional vector space is linearly dependent.
4. The mapping T : V3(R) V3(R) is defined by T(x,y,z) = (x-y,x-z). Show that T is a linear ransformation.
5. Let $T: R^3 \to R^2$ and $H: R^3 \to R^2$ be defined by T (x, y, z)= (3x, y+z) and H (x, y, z)= (2x-z, y). Compute i) T+H ii) 4T-5H iii) TH iv) HT.
6. If the matrix A is non-singular, show that the eigen values of A^{-1} are the reciprocals of the eigen values of A.
7. State and prove parallelogram law in an inner product space V(F).
8. Prove that the set S = $\left\{\left(\frac{1}{3},\frac{-2}{3},\frac{-2}{3}\right),\left(\frac{2}{3},\frac{-1}{3},\frac{2}{3}\right),\left(\frac{2}{3},\frac{2}{3},\frac{-1}{3}\right)\right\}$ is an orthonormal set in the inner product space $R^3(R)$ with the standard inner product.

SECTION - B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9. (a) Define vector space. Let V (F) be a vector space. Let W be a non empty sub set of V. Prove that the Necessary and sufficient condition for W to be a subspace of V is $a, b \in F$ and $\alpha, \beta \epsilon V \Rightarrow a\alpha + b\beta \epsilon W$

(OR)

(b) Prove that the four vectors (1,0,0), (0,1,0), (0,0,1) and (1,1,1) of $V_3(C)$ form linearly dependent set, but any three of them are linearly independent.

10. (a) Define dimension of a finite dimensional vector space. If W is a subspace of a finite Dimensional vector space V (F) then prove that W is finite dimensional and dim W $\leq n$.

(OR)

(b) If W be a subspace of a finite dimensional vector space V(F) then Prove that

. $\dim {}^{V}/_{W} = \dim V - \dim W$

11. (a) Find T (x, y, z) where $T: R^3 \rightarrow R$ is defined by T (1, 1, 1) =3, T (0, 1, -2) =1, T (0, 01) = -2

(OR)

(b) State and prove Rank Nullity theorem.

12. (a) Find the eigen values and the corresponding eigen vectors of the matrix A= $\begin{pmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{pmatrix}$

(OR)

(b) State and prove Cayley-Hamilton theorem.

13. (a) State and prove Schwarz's inequality in an Inner product space V(F).

(OR)

(b) Given $\{(2,1,3),(1,2,3),(1,1,1)\}$ is a basis of R^3(R).Construct an orthonormal basis using Gram-Schmidt orthogonalisation process.

UG Program (4 Years Honors)
CBCS-2020-21

B. Com
COMPUTER APPLICATIONS

Syllabus and Model Question Papers

TABLE OF CONTENTS

S. No.	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of Course titles & Credits	4
	a. Proposed combination subjects:	4
	b. Student eligibility for joining in the course:	4
	c. Faculty eligibility for teaching the course	4
	d. List of Proposed Skill enhancement courses with syllabus, if any	4
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	4
	f. Required instruments/software/ computers for the course	4
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	5
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	5
	i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent	5
3	Program objectives, outcomes, co-curricular and assessment methods	5
4	Details of course-wise syllabus for Theory and Lab	7
5	Model Question Courses for Theory and Lab	9
6	Details of Syllabus on Skill Enhancement courses and Model Question Courses for Theory and Lab	

1. Resolutions of the Board of Studies:

Meeting held on:22/01/2021Time: 10.00 Am
At: NTR Convention Centre, Adikavi Nannaya University Campus, Rajamahendravaram

Agenda: As per the directions and guidelines/modalities issued by the APSCHE for revising the curriculum framework and updating the syllabus as out-come based B. Com programme to be effect from 2020-21 academic year under CBCS for implementing in all affiliated colleges of AKNU

Members present:

Dr. N. Udaya Bhaskar	Chairman, Dept. of Commerce and Management Studies, Adikavi Nannaya University, Rajamahednravaram, East Godavari District
Dr.J.Sanath Kumar	Member, RRDS Govt Degree College, Bhimavaram, West Godavari District
Dr. Kopparthi Ammaji	Member, BGBS Women's College, Narsapur, West Godavari District
Dr. K. Ratna Manikyam	, Member, Dept. of Commerce, Govt. College (A), Rajahmundry
Dr. M. Ramesh	Member, Dept. of Commerce and Management, Adikavi Nannaya University, Rajamahednravaram, East Godavari District

Resolutions: The UG board of Studies for B. Com (Computer applications) is resolved the following implementation subject to approval.

1. Adoption of revised-common programme structure and updating course-wise syllabi as per the guidelines issued by APSCHE.
2. Adoption of regulations on scheme of examination and marks/grading system of the University UG programme.
3. Preparation of Model question Courses in prescribed format.
4. Eligibility of student for joining the course.
5. List of Course-setters/Course evaluators with phone, email id in the prescribed format.

DETAILS OF COURSES TITLES AND CREDITS

Sem	Course No	Course Name	Course Type (T/P/L)	Hrs/Week	Credits	Max. Marks	Max. Marks
				Commerce :5	Commerce :4	Count/Internal/ Mid Assessment	Sem- End Exam
I	1A	Fundamentals of Accounting	T	5	4	25	75
	1B	Business Organization and Management	T	5	4	25	75
	1C	Information Technology	T+L	3+2	3+1	25	75
II	2A	Financial Accounting	T	5	4	25	75
	2B	Business Economics	T	5	4	25	75
	2C	E-Commerce and Web Designing	T+L	3+2	3+1	25	75
III	3A	Advanced Accounting	T	5	4	25	75
	3B	Business Statistics	T	5	4	25	75
	3C	Programming with C &C++	T+L	3+2	3+1	25	75
IV	4A	Corporate Accounting	T	5	4	25	75
	4B	Cost and Management Accounting	T	5	4	25	75
	4C	Income Tax	T	5	4	25	75
	4D	Business Laws	T	5	4	25	75
	4E	Auditing	T	5	4	25	75
	4F	Data Base Management System	T+L	3+2	3+1	25	75

Note: * Course Type Code : T-Theory, L - Lab, P: Problem solving

a) Proposed combination subjects: Accounting and Commerce.

b) Student eligibility for joining in the course: 10+2 (any discipline), Open Inter School and its equivalent.

c) Faculty eligibility for teaching the course: Passed Post Graduation Degree with relevant specialization and also having higher qualification like SET/NET/Ph. D.

d) List of Proposed Skill enhancement courses with syllabus, if any.

e) Any newly proposed Skill development/Life skill courses with draft syllabus and required resources.

f) Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students).

g) List of Suitable levels of positions eligible in the Govt/Pvt organizations . Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification.

S.No.	Position	Company/ Govt organization	Remarks	Additional skills required, if any
01	Accountant	Any Govt./Private Organization		
02	Supporting Staff	Any Govt./Private Organization		
03	Clerk	Banking Industry		
04	Entrepreneur	Own Business		

h) List of Govt. organizations / Pvt companies for employment opportunities or internships or projects.

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
01	Service Industry	Junior Assistant/Senior Assistant/LDC/UDC/Clerck		
02	Manufacturing Industry	Accountant/Cashier/Clerck		
03	Hotel Industry	Accountant/Cashier		
04	Banking Sector	Cashier/Asst. Cader/Clerical		

i) Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent.

3. Program objectives, outcomes, co-curricular and assessment methods.

B. Com	Computer applications

1. Aim and objectives of B. Com program:
The B. Com programme aims to make the students employable and self employment oriented (Self employable). It aims to make the students learn the writing and interpretation of books of accounts, be conversant with the financial and economic environment and acquire the management skills required to manage the business.

2. Learning outcomes of B. Com:

- This program could provide Industries, Banking Sectors, Insurance Companies, Financing companies, Transport Agencies, Warehousing etc., well trained professionals to meet the requirements.
- After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, over all Administration abilities of the Company.
- Capability of the students to make decisions at personal & professional level will increase after completion of this course. Students can independently start up their own Business.
- Students can get thorough knowledge of finance and commerce.

- ❖ The knowledge of different specializations in Accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work.

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

A. Measurable:

1. Assignments on:
2. Student seminars (Individual presentation of Courses) on topics relating to:
3. Quiz Programmes on:
4. Individual Field Studies/projects:
5. Group discussion on:
6. Group/Team Projects on:

B Computer applications

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus .
2. Group Discussions on: Subject related matters.
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers.
4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests).
2. Closed-book and open-book tests.
3. Coding exercises.
4. Practical assignments and laboratory reports.
5. Observation of practical skills.
6. Individual and group project reports.
7. Efficient delivery using seminar presentations.
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations.
10. Peers and self-assessment, outputs form individual and collaborative work.

4.Details of course-wise Syllabus:

DETAILS OF COURSE WISE SYLLABUS FOR THEORY & MODEL QUESTION COURSES

B.Com	Semester: I	Credits: 4
Course: 1A	FUNDAMENTALS OF ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organisations.

UNIT I:

Introduction : Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

UNIT II:

S**ubsidiary Books:** Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).

UNIT III:

Trial Balance and Rectification of Errors: Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)

UNIT IV:

Bank Reconciliation Statement: Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).

UNIT V:

Final Accounts: Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

TEXT BOOKS:

1. Ranganatham G and Venkataramanaiah, Fundamentals of Accounting, S Chand Publications.
2. T.S.Reddy& A. Murthy, Financial Accounting, Margham Publications.
3. S N Maheswari and SK Maheswari, Financial Accounting, Vikas Publications.
4. R L Gupta & V K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons.
5. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers.
6. Tulasian, Accountancy -I, Tata McGraw Hill Co.

7. V.K.Goyal, Financial Accounting, Excel Books .
8. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications.
9. Prof EChandraiah : Financial Accounting Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Bridge Course for Non-commerce Students.
- Practice of Terminology of Accounting .
- Quiz, Word Scramble.
- Co-operative learning.
- Seminar.
- Co-operative learning .
- Problem Solving Exercises.
- Matching, Mismatch.
- Creation of Trial Balance.
- Visit a firm (Individual and Group).
- Survey on sole proprietorship and prepare final accounts of concern.
- Group Discussions on problems relating to topics covered in syllabus.
- Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE – THEORY

B.Com. DEGREE EXAMINATIONS
Semester: I
Course(1A): Fundamentals of Accounting

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Bookkeeping.
2. Petty Cash Book.
3. Suspense Account.
4. Need for Bank Reconciliation.
5. Trading Account.
6. Accounting Cycle.
7. Journal Proper.
8. Trial Balance .

Section-B

Answer **FIVE** questions **5X10=50M**

9. a). What are the advantages and limitations of Double Entry System?

(OR)

b). Briefly explain accounting concepts and conventions.

10. a) Explain various types of subsidiary books.

(OR)

b) Prepare Triple Column Cash Book from the following information of Koushik.

1st March 2020

1. Cash in hand Rs.1532 and balance at bank Rs.18500.
2. Received from Salman Rs.590 and allowed him discount Rs.10.
3. Paid salaries for the month of February Rs.200.
4. Purchased merchandise payment made by cheque Rs.3200.
8. Paid Bilal & Co by cheque Rs.800 discount received Rs.20.
10. Withdrew from bank for office use Rs.400. paid rent in cash Rs.300.
14. Deposited into bank Rs.500.
15. Cash sales Rs.2460.
18. Purchased a motor car for Rs.6500 payment made by cheque.
23. Received a cheque from Salman for Rs.391 discount Rs.9.
25. Paid wages Rs.350.
28. Salman cheque paid into bank.
29. Paid computer applications expenses Rs.360.
31. Bank informed that Salman's cheque has been dishonored.
31. Cash sales Rs.6440.

11. a) Briefly explain the advantages and limitations of trial balance

(OR)

b).Define Error. Briefly explain various types of erros.

12. a) Write the reasons for difference between pass book and cash book for bank reconciliation.

(OR)

(b) From the following particulars, prepare a Bank Reconciliation Statement for M/s Ramesh Traders as at 31st December, 2020.

i. Bank Balance as per cash book 8,000
ii. Two cheques were issued for 18,000 and 12,000 respectively, of which the cheque for 12,000 was presented on 4rd January next year.
iii. Cheque for 6,000 deposited on 25th was collected and credited by the bank on 4th January.
iv. Dividends collected by the bank 1,800 not recorded in the cash book.
v. Information relating to 4,600 deposit made by a debtor directly into the bank account has not yet been received.
vi. Bank charges 750 have been debited to the account by the bank on 31st December.

13. a) Distinguish between Profit and Loss Account and Balance Sheet.

(OR)

b) From the following Trial Balance of Ramesh as on 31st March 2020, prepare Trading and Profit and Loss account and Balance sheet taking into account the adjustments.

Trial Balance

Debit Balances Rs.	**Credit Balances Rs.**
Purchases 2,00,000	Capital 3,00,000
Salaries 10,000	Sales 2,50,000
Rent 7,500	Creditors1,05,000
Insurance premium 1,500	
Drawings 50,000	
Machinery 1,40,000	
Cash at bank 22,500	
Computers 1,25,000	
3Furniture 50,000	
Cash 10,000	
Opening Stock 26,000	
Sundry debtors 12,500	

Adjustments:

1. Closing stock as on 31.3.2015 Rs. 39,000
2. Rent outstanding Rs. 1,000
3. Provide interest on capital @ 10% and on Drawings @ 8%.
4. Depreciation on Machinery @10% and Furniture @ 5%

B.Com	Semester: I	Credits: 4
Course: 1B	BUSINESS ORGANIZATION AND MANAGEMENT	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will be able to:

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulate new models of business organizations.

UNIT I:

Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organisation.

UNIT II:

Forms of Business Organizations: Features, Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company.

UNIT III:

C**ompany Incorporation:** Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association - Contents of Prospectus.

UNIT IV:

Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs Management - Levels of Management.

UNIT V:

Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organisation – Line and staff of Organisation.

REFERENCE BOOKS:

1. Industrial Organization and Management,C.B.Guptha, Sultan Chand.
2. Business Organization - C.D.Balaji and G. Prasad, Margham Publications, Chennai.
3. Business Organization -R.K.Sharma and Shashi K Gupta, Kalyani Publications.
4. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: M.C. Shukla S. Chand,
7. Business Organisation and Management, Dr.NeeruVasishth, Tax Mann Publications.
8. Business Organisation and Management, Dr B E V L Naidu, Seven Hills International Publishers, Hyderabad .

Suggested Co-Curricular Activities:

- Book Reading
- Student Seminars, Debates
- Quiz Programmes
- Assignments
- Co-operative learning
- Individual / Group Field Studies
- Group Discussions on problems relating to topics covered by syllabus
- Collecting prospectus of different companies through media
- Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus.
- Talk on current affairs about business, industry etc.
- Simple project work on development of Certificate of Incorporation, Prospectus and Certificate of commencement of business.
- Biography of well-known management thinkers and managers of gigantic companies
- Examinations (Scheduled and surprise tests).

MODEL QUESTION COURSE – THEORY

B.Com. DEGREE EXAMINATIONS
Semester: I
Course(1B): Business Organization and Management

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Industry
2. Public Sector Enterprises
3. Prospectus
4. Administration
5. Organization
6. Commerce
7. MNCs
8. Line and Staff

Section-B

Answer **FIVE** questions **5X10=50M**

9 a) Define Trade. Briefly explain classification of trade.

(OR)

b) Define Business. What are the features and functions of Business.

10 a) What are the merits and demerits of Sole Proprietorship.?

(OR)

b) Distinguish between Private Limited Company and Public Limited Company.

11 a) Define Memorandum of Association. Explain its clauses.

(OR)

b) Briefly explain Articles of Association and its contents.

12 a) Explain the functions of Management.

(OR)

b) Explain Fayol's 14 Principles of Management.

13 a) Briefly explain merits and demerits of Planning.

(OR)

b) What are the steps involved in Planning?

B Com	Semester: I(Computer Applications)	Credits: 4
Course: 1C	INFORMATION TECHNOLOGY	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge).

1. Describe the fundamental hardware components that make up a computer's hardware and the role of each of these components.
2. Understand the difference between an operating system and an application program, and what each is used for in a computer.
3. Use technology ethically, safely, securely, and legally.
4. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems.

B. Explains (Understanding).

5. Apply standard statistical inference procedures to draw conclusions from data.
6. Retrieve information and create reports from databases.
7. Interpret, produce, and present work-related documents and information effectively and accurately

C. Critically examines, using data and figures (Analysis and Evaluation**).

8. Analyse compression techniques and file formats to determine effective ways of securing, managing, and transferring data.
9. Identify and analyse user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems.
10. Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
11. Identify and analyse computer hardware, software

D. Working in 'Outside Syllabus ***Area' under a Co-curricular Activity*(Creativity)** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

E. Efficiently learn and use Microsoft Office applications.

UNIT I:

Introduction: Computer Definition - Characteristics and Limitations of Computer Hardware— Generations of Computer, Classification of Computers, Applications of Computer, Basic Components of PC, Computer Architecture - Primary and Secondary Memories- Input and Output Devices- Operating System- Function of Operating System- Types of Operating System- Languages and its Types.

UNIT II:

MS word: Word Processing – Features-Advantages and Applications- Parts of Word Window- Toolbar- Creating, Saving, Closing, Opening and Editing of a Document-Moving and Coping a Text-Formatting of Text and Paragraph- Bullets and Numbering-Find and Replace - Insertion of objects-Headers and Footers- Page Formatting- Auto Correct- Spelling and Grammar- Mail Merge- Macros.

UNIT III:

MS Excel:

Features – Spread Sheet-Workbook – Cell-Parts of a window-Saving, Closing, Opening of a Work Book – Editing – Advantages – Formulas- Types of Function- Templates – Macros – Sorting- Charts – Filtering – Consolidation – Grouping- Pivot Table.

UNIT IV:

MS Power point: Introduction – Starting – Parts-Creating of Tables- Create Presentation – Templates-Auto Content Wizard-Slide Show-Editing of Presentation-Inserting Objects and charts.

UNIT V:

MS Access: Orientation to Microsoft Access - Create a Simple Access Database - Working with Table Data - Modify Table Data - Sort and Filter Records - Querying a Database - Create Basic Queries - Sort and Filter Data in a Query - Perform Calculations in a Query - Create Basic Access Forms - Work with Data on Access Forms - Create a Report - Add Controls to a Report - Format Reports.

ONLINE RESOURCES:

https://support.office.com/en-us/office-training-center
https://www.skillshare.com/browse/microsoft-office
https://www.tutorialspoint.com/computer_fundamentals/index.htm
https://www.javatpoint.com/computer-fundamentalstutorial
https://edu.gcfglobal.org/en/subjects/office/
https://www.microsoft.com/en-us/learning/training.aspx

PRACTICAL COMPONENT: @ 2 HOURS/WEEK/BATCH .

- MS word creation of documents letters invitations etc, tables, mail merge, animations in word, formatting text.
- MS Excel performing different formulas, creating charts, macros.
- MS power point slide creation, creation of animation.
- MS Access creation of database, forms and reports

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging).
2. Student seminars (on topics of the syllabus and related aspects (individual activity).
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)).
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity).
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)).

General.

1. Group Discussion.
2. Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted:

1. The oral and written examinations (Scheduled and surprise tests).
2. Closed-book and open-book tests.
3. Coding exercises.
4. Practical assignments and laboratory reports.
5. Observation of practical skills.
6. Individual and group project reports.
7. Efficient delivery using seminar presentations.
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations.
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION COURSE – THEORY

B.Com. DEGREE EXAMINATIONS
Semester: I(Computer Applications)
Course(1C): Information Technology

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. What are the Applications of Computer?
2. Write about the parts of Word-Window.
3. What are the features of MS-Excel?
4. What are the features of MS-Power Point?
5. What are the basic queries in MS-Access?
6. What are the Basic Components of PC?
7. Write Types of Functions in MS-Excel.
8. What are the types of effects in Custom Animation?

Section-B

Answer **FIVE** questions. **5X10=50M**

9. a) Explain about Computer Architecture.

(OR)

b) Explain about functions of Operating System and types of Operating Systems.

10. a) What are the Features, Advantages and Applications MS-Word

(OR)

b) Write the process how to prepare Progress Report of Students using Mail Merge.

11. a) How to Prepare Students Results Table with Total, Percentage and Pass/Fail using Formulas.

(OR)

b) Write the process for Sorting, Filtering, Consolidation and Grouping in MS-Excell.

12. a) Write the process of how to prepare a power point presentation and slideshow.

(OR)

b) Write about different types of animations in MS-Power Point.

13. a) Write the process how to Create a Report, Add Controls to a Report and Format Reports in MS Access.

(OR)

b) Write the process how to create a Simple Access Database, Working with Table Data and Modify Table Data.

B Com	Semester: II	Credits: 4
Course: 2A	FINANCIAL ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course the student will able to:

- Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- Analyze the accounting process and preparation of accounts in consignment and joint venture.
- Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.
- Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.
- Design an accounting system for different models of businesses at his own using the principles of existing accounting system.

UNIT I:

Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line – Written Down Value –Annuity and Depletion Method (including Problems).

UNIT II:

Provisions and Reserves: Meaning – Provision vs. Reserve – Preparation of Bad Debts Account – Provision for Bad and Doubtful Debts – Provision for Discount on Debtors– Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).

UNIT III:

Bills of Exchange: Meaning of Bill – Features of Bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (including Problems).

UNIT IV:

Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales – Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).

UNIT V:

Joint Venture Accounts: JointVenture - Features - Difference between Joint- Venture and Consignment – Accounting Procedure – Methods of Keeping Records–One Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).

REFERENCE BOOKS:

1. Ranganatham G and Venkataramanaiah, **Financial Accounting-II,** S Chand Publications, New Delhi.
2. T. S. Reddy and A. Murthy - **Financial Accounting**, Margham Publications.
3. R.L. Gupta & V.K. Gupta, **Principles and Practice of Accounting**, Sultan Chand.
4. SN Maheswari and SK Maheswari – **Financial Accounting**, Vikas Publications.
5. S.P. Jain & K.L Narang,**Accountancy-I**, Kalyani Publishers.
6. Tulsan, **Accountancy-I**, Tata McGraw Hill Co.
7. V.K. Goyal, **Financial Accounting**, Excel Books.
8. T.S. Grewal, **Introduction to Accountancy**, Sultan Chand & Co.
9. Haneef and Mukherjee, **Accountancy-I**, Tata McGraw Hill.
10. Arulanandam and Ramana, **Advanced Accountancy**, Himalaya Publishers.
11. S.N.Maheshwari&V.L.Maheswari, **Advanced Accountancy-I**, Vikas Publishers.
12. Prof E Chandraiah, **Financial Accounting**, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Quiz Programs.
- Problem Solving Exercises.
- Co-operative learning.
- Seminar.
- Group Discussions on problems relating to topics covered by syllabus.
- Reports on Proforma invoice and account sales.
- Visit a consignment and joint venture firms(Individual and Group).
- Collection of proforma of bills and promissory notes.
- Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: II
Course(2A): Financial Accounting

Time: 3 Hours. Max Marks: 75

SECTION-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Depletion Method of Depreciation
2. Computer applications Reserve
3. Drawer
4. Normal Loss
5. Vendor
6. Bad debts
7. Del-credere commission
8. Consignor

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Depreciation. What are the causes for Depreciation?

(OR)

b) A company whose accounting year is the calendar year purchased on 1.1.2018 a machine for Rs.40,000. It purchased further machinery on 1st October 2018 for Rs. 20,000 and on 1st July for Rs. 10,000. On 1.7.2020, 1/4th of the machinery installed on 1.1.2018 became obsolete and was sold for Rs. 6,800. Show how the machinery account would appear in the books of the company for all the 3 years under diminishing balance method. Depreciation is to be provided at 10% p.a.

10. a) Define Provision and Reserve with examples and difference between provision and reserve.

(OR)

b) What are the provisions? How are they created? Give accounting treatment in case of provision for doubtful debts.

11. a) B owes C a sum of Rs 6,000. On 1st April, 2011 he gives a promissory note for the amount for 3 months to C who gets it discounted with his bankers for Rs 5,760. On the due date the bill is dishonoured, the bank paying Rs 15 as noting charges. B then pays Rs 2,000 in cash and accepts a bill of exchange drawn on him for the balance together with Rs 100 as interest. This bill of exchange is for 2 months and on the due date the bill is again dishonoured, C paying Rs 15 for noting charges draft the journal entries to be passed in C's books.

(OR)

b) What is meant by renewal of a bill of exchange? Distinguish between Promissory Note and Bills of Exchange.

12. a) Define consignment account. Briefly explain the features and objectives of consignment accounts.

(OR)

b) Raja Mills Ltd. of Ahmedabad sent 100 pieces shirting to Fancy Stores, Delhi, on consignment basis. The consignees are entitled to receive 5 per cent commission plus expenses. The cost to Raja Mills Ltd. is Rs 600 per piece.
Fancy Stores, Delhi, pay the following expenses: Railway Freight, etc. Rs 1,000 Godown Rent and Insurance Rs 1,500 Raja Mills Ltd., draw on the consignees a draft for Rs 30,000 which is duly accepted. It is discounted for Rs 28,650. Later Fancy Stores, Delhi, report that the entire consignment has been sold for Rs 78,000. Show journal entries and the important ledger accounts in the books of the consignor.

13 a) A and B were partners in a joint venture sharing profits and losses in the proportion of four-fifth and one-fifth respectively. A supplies goods to the value of Rs.5,000 and inures expenses amounting to Rs.400. B supplies goods to the value of Rs.4,000 and his expenses amounting to Rs.300. B sells goods on behalf of the joint venture and realizes Rs.12,000. B is entitled to a commission of 5 percent on sales. B settles his accounts by bank draft. Give journal entries and necessary ledger accounts in the books of both the parties.

(OR)

b) Difference between consignment and joint venture.

B Com	Semester: II	Credits: 4
Course: 2B	BUSINESS ECONOMICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Describe the nature of economics in dealing with the issues of scarcity of resources.
- Analyze supply and demand analysis and its impact on consumer behaviour.
- Evaluate the factors, such as production and costs affecting firms behaviour.
- Recognize market failure and the role of government in dealing with those failures.
- Use economic analysis to evaluate controversial issues and policies.
- Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.

UNIT I:

Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics - Micro and Macro Economics and their Interface.

UNIT II:

Demand Analysis: Meaning and Definition of Demand – Determinants to Demand –Demand Function -Law of Demand – Demand Curve – Exceptions to Law of Demand - Elasticity of Demand – Measurements of Price Elasticity of Demand.

UNIT III:

Production, **Cost and Revenue Analysis**: Concept of Production Function – Law of Variable Proportion - Law of Returns to Scale - Classification of Costs -Break Even Analysis – Advantages.

UNIT IV:

Market Structure: Concept of Market – Classification of Markets -Perfect Competition – Characteristics – Equilibrium Price -Monopoly – Characteristics – Equilibrium Under Monopoly.

UNIT V:

National Income: Meaning – Definition – Measurements of National Income - Concepts of National Income - Components of National Income-Problems in Measuring National Income.

REFERENCES:

1. Business Economics -S.Sankaran, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics - Himalaya Publishing House.
4. Business Economics - Aryasri and Murthy, Tata McGraw Hill.
5. Business Economics -H.L Ahuja, Sultan Chand & Sons
6. Principles of Economics -Mankiw, Cengage Publications
7. Fundamentals of Business Economics -Mithani, Himalaya Publishing House
8. Business Economics -A.V. R. Chary, Kalyani Publishers, Hyderabad.
9. Business Economics -Dr K Srinivasulu, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Assignments.
- Student Seminars.
- Quiz , JAM.
- Study Projects.
- Group Discussion.
- Graphs on Demand function and demand curves.
- Learning about markets.
- The oral and written examinations (Scheduled and surprise tests).
- Market Studies.
- Individual and Group project reports.
- Annual talk on union and state budget.
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: II
Course(2B): Business Economics

Time: 3 Hours. Max Marks: 75

SECTION-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Micro Economics.
2. Law of Demand.
3. Cost Analysis.
4. Monopoly.
5. National Income.
6. Demand Curve.
7. BEP.
8. Forecasting.

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Business Economics. Explain the nature and scope of Business Economics.

(OR)

b) Distinguish between Micro and Macro economics.

10. a) What is meant by Demand? What are the exceptions to Law of Demand?

(OR)

b) What do you understand by elasticity of demand ? Explain the factors which determine the elasticity of demand.

11. a) Discuss the various concepts of cost curves. Why is long cost curve flatter than the short-run cost curve?

(OR)

b) What are the advantages and limitations of Break Even Analysis?

12. a) Define Market. Briefly explain the classification of markets.

(OR)

b) Write an essay on Monopoly.

13. a) Describe the different concepts and components in National Income.

(OR)

b) Briefly explain problems in measuring National Income.

B Com	Semester: II(Computer Applications)	Credits: 4
Course: 2C	E-COMMERCE AND WEB DESIGNING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge).

1. Understand the foundations and importance of E-commerce.
2. Define Internet trading relationships including Business to Consumer, Business- to-Business, Intra-organizational.
3. Describe the infrastructure for E-commerce.
4. Discuss legal issues and privacy in E-Commerce.
5. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture

B. Explains (Understanding).

6. Recognize and discuss global E-commerce issues.
7. Learn the language of the web: HTML and CSS.

C. Critically examines, using data and figures (Analysis and Evaluation).

8. Analyze the impact of E-commerce on business models and strategy.
9. Assess electronic payment systems.
10. Exploring a web development framework as an implementation example and create dynamically generated web site complete with user accounts, page level security, modular design using css

D. Working in 'Outside Syllabus ***Area' under a Co-curricular Activity*(**Creativity) Use the Systems Design Approach to implement websites with the following steps:

- Define purpose of the site and subsections.
- Identify the audience.
- Design and/or collect site content.
- Design the website theme and navigational structure.
- Design & develop web pages including: CSS Style Rules, Typography, Hyperlinks, Lists, Tables, Frames, Forms, Images, Behaviours, CSS Layouts

E. Build a site based on the design decisions and progressively incorporate tools and techniques covered.

UNIT I:

Introduction: Meaning, Nature, Concepts, Advantages, Disadvantages and reasons for Transacting Online, Types of E-Commerce, e-commerce Business Models (Introduction , Key Elements of a Business Model And Categorizing Major E-Commerce Business Models), Forces Behind e-commerce.

Technology used in E-commerce: The dynamics of World Wide Web and Internet (Meaning, EvolutionAnd Features); Designing, Building and Launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing Vs. in-house development of a website).

UNIT II:

E-payment System: Models and methods of e–payments (Debit Card, Credit Card, Smart Cards, e-money), Digital Signatures (Procedure, Working And Legal Position), Payment Gateways, Online Banking (Meaning, Concepts, Importance, Electronic Fund Transfer, Automated Clearing House, Automated Ledger Posting), Risks Involved in e-payments.

UNIT III:

On-line Business Transactions: Meaning, Purpose, Advantages and Disadvantages of Transacting Online, E- Commerce Applications in Various Industries Like {Banking, Insurance, Payment of Utility Bills, Online Marketing, E-Tailing (Popularity, Benefits, Problems and Features), Online Services

(Financial, Travel and Career), Auctions, Online Portal, Online Learning, Publishing and Entertainment} Online Shopping (Amazon, Snap Deal, Alibaba, Flipkart, etc.).

UNIT IV:

Website designing: Designing a home page, HTML document, Anchor tag Hyperlinks, Head and body section, Header Section, Title, Prologue, Links, Colorful Pages, Comment, Body Section, Heading Horizontal Ruler, Paragraph, Tabs, Images And Pictures, Lists and Their Types, Nested Lists, Table Handling. **Frames:** Frameset Definition, Frame Definition, Nested Framesets, Forms and Form Elements. DHTML and Style Sheets: Defining Styles, elements of Styles, linking a style sheet to a HTML Document, Inline Styles, External Style Sheets, Internal Style Sheets & Multiple Style Sheets.

UNIT V:

Security and Encryption: Need and Concepts, E-Commerce Security Environment: (Dimension, Definition and Scope Of E-Security), Security Threats in The E-Commerce Environment (Security Intrusions And Breaches, Attacking Methods Like Hacking, Sniffing, Cyber- Vandalism Etc.), Technology Solutions (Encryption, Security Channels Of Communication, Protecting Networks And Protecting Servers And Clients).

Learning Resources (Course 2C: E-commerce & Web Designing) References:

1. E-commerce and E-business Himalaya publishers.
2. E-Commerce by Kenneth C Laudon, PEARSON INDIA.
3. Web Design: Introductory with Mind Tap Jennifer T Campbell, Cengage India.
4. HTML & WEB DESIGN:TIPS& TECHNIQUES JAMSA, KRIS, McGraw Hill.
5. Fundamentals Of Web Development by Randy Connolly, Ricardo Hoar, Pearson.
6. HTML & CSS: COMPLETE REFERENCE POWELL,THOMAS, McGrawHill

Online Resources:

http://www.kartrocket.com http://www.e-commerceceo.com http://www.fastspring.com
https://teamtreehouse.com/tracks/web-design

PRACTICAL COMPONENT:@ 2 HOURS/WEEK/BATCH

1. Creation of simple web page using formatting tags
2. Creation of lists and tables with attributes
3. Creation of hyperlinks and including images
4. Creation of forms
5. Creation of framesets
6. Cascading style sheets – inline, internal and external

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

Measurable .

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging).
2. Student seminars (on topics of the syllabus and related aspects (individual activity).
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams).
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity).
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

General.

1. Group Discussion.
2. Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: II(Computer Applications)
Course(2C): E-Commerce And Web Designing

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Write about Types of E-Commerce.
2. What are the Risks Involved in e-payments?
3. What are the Advantages and Disadvantages of Transacting Online?
4. Write examples for Lists and their types.
5. Write the Definition and Scope of E-Security.
6. What are the features of WWW and Internet?
7. Write how to link a style sheet to a HTML Document.
8. What are the methods of e-Payments?

Section-B

Answer **FIVE** questions. **5X10=50M**

9. a) Write about e-commerce Business Models.

(OR)

b) Explain about Designing, Building and Launching e-commerce website.

10. a) Explain about Digital Signatures.

(OR)

b) Explain about Online Banking.

11. a) Write about E-Tailing (Popularity, Benefits, Problems and Features).

(OR)

b) Write about Online Learning, Publishing and Entertainment.

12. a) Write the code to design a web page with Form and form elements

(OR)

b) Write about Inline, External, Internal and Multiple Style Sheets.

13. a) Write about Security Threats in the E-Commerce Environment.

(OR)

b) Write about Technology Solutions for Security.

B Com	Semester: III	Credits: 4
Course: 3A	ADVANCED ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the concept of Non-profit organisations and its accounting process.
- Comprehend the concept of single-entry system and preparation of statement of affairs.
- Familiarize with the legal formalities at the time of dissolution of the firm .
- Prepare financial statements for partnership firm on dissolution of the firm.
- Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership.

UNIT I:

Accounting for Non Profit Organizations: Non Profit Entities- Meaning - Features of Non-Profit Entities –Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including problems).

UNIT II:

Single Entry System: Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems).

UNIT III:

Hire Purchase System: Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems).

UNIT IV:

Partnership Accounts-I: Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner(including problems).

UNIT V:

Partnership Accounts-II: Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).

REFERENCES BOOKS:

1. Advanced Accountancy: T S Reddy and A Murthy by Margham Publications.
2. Financial Accounting: SN Maheswari& SK Maheswari by Vikas Publications.
3. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
4. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand &Sons..
5. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas publishers.
6. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP Publications.
7. Accountancy–III: Tulasian, Tata McGraw Hill Co.
8. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
9. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.
10. Advanced Accounting: Prof B Amarnadh, Seven Hills International Publishers.
11. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.

Suggested Co-Curricular Activities:

- Quiz Programs and Problem Solving exercises.
- Co-operative learning.
- Seminar and Visit a single-entry firm, collect data and Creation of Trial Balance of the firm .
- Visit Non-profit organization and collect financial statements.
- Critical analysis of rate of interest on hire purchase schemes.
- Visit a partnership firm and collect partnership deed .
- Debate on Garner v/s Murray rule in India and outside India.
- Group Discussions on problems relating to topics covered by syllabus.
- Examinations (Scheduled and surprise tests) on all units.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: III
Course(3A): Advanced Accounting

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Non-profit organizations
2. Statement of Affairs
3. Hire Vendor
4. Partnership Deed
5. Garner Vs Murrey
6. Dissolution of Partnership
7. Accounting Process
8. Double Entry System

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Distinguish between Income and Expenditure and Receipts and Payment Accounts.

(OR)

b) What are the provisions and features of Non-profit organizations?

10. a) Briefly explain advantages and limitations of single entry system.

(OR)

b) Mr. Ramesh, who keeps his books on single entry system, tells you that his capital on 31-12-2019 is Rs.40,500 and on 1st January 2019 was Rs.25,800. He further informs you that he withdraws Rs.3,500 for personal purposes. He invested further capital of Rs.5,000. Besides this, there is no other information. You are required to prepare Statement of Profit and Loss for the year ended on 31-12-2019.

11. a) Malnad Coffee Works Ltd., bought coffee drying machine costing Rs.6,56,000 from Xavier Ltd on 1st January 2019 on hire purchase basis. Rs. 2,00,000 was paid on signing the contract and the balance in three annual instalments of Rs. 2,00,000 (each) by the end of December every year. Interest was charged at 15% per annum. Life of the machine was expected to be four years. You are required to pass the journal entries and necessary ledger accounts in the books of (i) Malnad Coffee Works Ltd., and (ii) Xavier Ltd.

(OR)

b) Briefly explain the advantages and limitations of Instalment System.

12. a) Briefly explain the classification of Partners.

(OR)

b) A and B are partners in a firm sharing profits and losses in the ratio of 3:2. A new partner C is admitted. A surrenders 1/5th of his share and B surrenders 2/5th of his share and B surrenders 2/5th of his share in favour of C. For the purpose of C's admission, goodwill of the firm is valued at Rs.75,000 and C brings in his share of goodwill in cash which is retained in the firm's books. Journalise the above transactions.

13. a) the Balance sheet of X, Y and Z as at 31 st March, 2018 was:

Liabilities		**Amount Rs.**	**Assets**	**Amount Rs.**
Bills Payable		2000	Cash at Bank	5,800
Employees' Provident Fund		5000	Bills Receivable	800
Workmen Compensation Reserve		6000	Stock	9,000
Computer applications Reserve		6000	Sundry Debtors	16,000
Loans		7100	Furniture	2,000
Capital A/cs:			Plant and Machinery	6,500
X	22,750		Building	30,000
Y	15,250		Advertising Suspense	6,000
Z	12,000	50,000		
		76,100		**76,100**

The profit-sharing ratio was 3:2:1. *Z* died on 31st July, 2018. The Partnership Deed provides that:
(i) Goodwill is to be calculated on the basis of three years' purchase of the five years' average profit. The profits were: 2017-18: Rs. 24,000; 2016-17: Rs. 16,000; 2015-16: Rs. 20,000 and 2014-15: Rs. 10,000 and 2013-14: Rs. 5,000.
(ii) The deceased partner to be given share of profits till the date of death on the basis of profits for the previous year.
(iii) The Assets have been revalued as: Stock Rs.10,000; Debtors Rs. 15,000; Furniture Rs.1,500; Plant and Machinery Rs. 5,000; Building Rs.35,000. A Bill Receivable for Rs. 600 was found worthless.
(iv) A Sum of Rs. 12,233 was paid immediately to *Z*'s Executors and the balance to be paid in two equal annual installments together with interest @ 10% p.a. on the amount outstanding.Give Journal entries and show the *Z*'s Executors' Account till it is finally settled.

(OR)

b) How would you distinguish between dissolution of partnership and dissolution of Firm?

B Com	Semester: III	Credits: 4
Course: 3B	BUSINESS STATISTICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the importance of Statistics in real life.
- Formulate complete, concise, and correct mathematical proofs.
- Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.
- Build and assess data-based models.
- Learn and apply the statistical tools in day life.
- Create quantitative models to solve real world problems in appropriate contexts.

UNIT I:

Introduction to Statistics: Definition – Importance, Characteristics and Limitations of Statistics - Classification and Tabulation – Frequency Distribution Table -Diagrams and Graphic Presentation of Data (including problems)

UNIT II:

Measures of Central Tendency: Types of Averages – Qualities of Good Average - Mean, Median, Mode, and Median based Averages-Geometric Mean – Harmonic Mean(including problems)

UNIT III:

Measures of Dispersion: Meaning and Properties of Dispersion – Absolute and Relative Measures - Types of Dispersion-Range - Quartile Deviation (Semi – Inter Quartile Range) -Mean Deviation - Standard Deviation - Coefficient of Variation. (including problems)

UNIT IV:

Skewness and Kurtosis: Measures of Skewness: Absolute and Relative Measures- Co-efficient of Skewness: Karl Pearson's, Bowley's and Kelly's - Kurtosis: Meso kurtosis, Platy kurtosis and Leptokurtosis (including problems)

UNIT V:

Measures of Relation: Meaning and use of Correlation – Types of Correlation - Karlpearson's Correlation Coefficient - Probable Error-Spearman's Rank-Correlation (including problems)

TEXT BOOKS:

1. Business Statistics, Reddy C.R., Deep Publications.
2. Statistical Methods: Gupta S.P.Sultan Chand & Sons.
3. Statistics-Problems and Solutions: Kapoor V.K, Sultan Chand &Sons.
4. Fundamentals of Statistics: Elhance. D.N
5. Business Statistics, Dr.P.R.Vittal, Margham Publications
6. Business Statistics, LS Agarwal, Kalyani Publications.
7. Statistics: Dr V Murali Krishna, Seven Hills International Publishers.
8. Fundamentals of Statistics: Gupta S.C. Sultan Chand &Sons.
9. Statistics-Theory, Methods and Applications: Sancheti, D.C. & Kapoor V.K.
10. Business Statistics: J.K. Sharma, Vikas Publishers.
11. Business Statistics: Bharat Jhunjhunwala, S Chand Publishers.
12. Business Statistics: S.L.Aggarval, S.L.Bhardwaj and K.Raghuveer, Kalyani Publishers.

Suggested Co-Curricular Activities :

- Student Seminars, Quiz. and Problem Solving Exercises.
- Observe Live Population Clocks – India and world.
- Collection of statistical data of village/town, District, State, Nation.
- Participate in Crop Cutting Experiments at villages.
- Percentiles in CET exams.
- Practice Statistical Functions in MS Excel and Draw diagrams and Graphs in MS Excel.
- Use statistical tools in real life like class/college results, local production etc.
- Prepare questionnaire and schedule.
- Application of averages in everyday life and Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: III
Course(3B): Business Statistics

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Classification of Data
2. Harmonic Mean
3. Range
4. Skewness
5. Correlation
6. Probable Error
7. Coefficient of Variation
8. Frequency Distribution

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Highlight the role and importance of statistics in business decision making in detail.

(OR)

b) Briefly explain the nature and scope of Business Statistics.

10. a) What are the advantages and limitations of measures of central tendency?

(OR)

b) Calculate Mean and Variance of the following Data.

Size	14	16	18	20	22	24	26
Frequency	12	13	14	15	13	12	16

11. a) Calculate quartile deviation and its coefficient from the following data :

C.I	0-10	10-20	20-30	30-40	40-50
F	5	7	10	5	8

(OR)

b) Define standard deviation. Briefly explain advantages and limitations of standard deviation.

12.a) Given the following information, find the number of items (n) where rxy = 0.8, x$\sum$y = 2.5,σxy =60, $\sum$2 = 90, where x and y are the deviations from the respective means.

(OR)

b) Briefly explain the measures of skewness.

13. a) Calculate the co-efficient of correlation from the following data:

X	12	9	8	10	11	13	07
Y	14	8	6	9	11	12	3

Through Karl Pearson's method.

(OR)

b) Explain various types of correlation.

B Com	Semester: III(Computer Applications)	Credits: 4
Course: 3C	PROGRAMMING WITH C &C++	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge).

1. Develop programming skills.
2. Declaration of variables and constants use of operators and expressions.
3. learn the syntax and semantics of programming language.
4. Be familiar with programming environment of C and C++.
5. Ability to work with textual information (characters and strings) & arrays

B. Explains (Understanding).

6. Understanding a functional hierarchical code organization.
7. Understanding a concept of object thinking within the framework of functional model.
8. Write program on a computer, edit, compile, debug, correct, recompile and run it

C. Critically examines, using data and figures (Analysis and Evaluation).

9. Choose the right data representation formats based on the requirements of the problem.
10. Analyze how C++ improves C with object-oriented features.
11. Evaluate comparisons and limitations of the various programming constructs and choose correct one for the task in hand.

D. Working in 'Outside Syllabus ***Area' under a Co-curricular Activity***(Creativity) Planning of structure and content, writing, updating and modifying computer programs for user solutions

E. Exploring C programming and Design C++ classes for code reuse (Practical skills***).

UNIT I:

Introduction and Control Structures: History of 'C' - Structure of C program – C character set, Tokens, Constants, Variables, Keywords, Identifiers – C data types - C operators - Standard I/O in C - Applying if and Switch Statements.

UNIT II:

Loops And Arrays: Use of While, Do While and For Loops - Use of Break and Continue Statements - Array Notation and Representation - Manipulating Array Elements - Using Multi Dimensional Arrays.

UNIT III:

Strings and Functions: Declaration and Initialization of String Variables - String Handling Functions - Defining Functions - Function Call - Call By Value, Call By Reference – Recursion.

UNIT IV:

Principles of Object Oriented Programming: Procedure Oriented Programming, Object Oriented Programming, Basic concepts of Object Oriented Programming, Applications of C++, A simple C++ Program, An example with Class, Structure of C++ Program, Creating source file, Compiling and Linking.

UNIT V:

Classes and Objects: Tokens, Keywords, Declaration of Variables, Dynamic initialization of variables, Specifying a Class, Defining member functions, Function overloading, Operator overloading, Constructors and Destructors, Inheritance and types of Inheritance.

REFERENCES:

1. Mastering C by K R Venugopal and Sudeep R Prasad, McGraw Hill.
2. Expert C Programming: Deep Secrets Kindle Edition Peter van der Linden.
3. Let Us C YashavantKanetkar.
4. The C++ Programming Language Bjarne Stroustrup.
5. C++ Primer Stanley B. Lippman, Josée Lajoie, Barbara E. Moo

Online Resources:

https://www.tutorialspoint.com/cprogramming/index.html
https://www.learn-c.org/
https://www.programiz.com/c-programming
https://www.w3schools.in/c-tutorial/
https://www.cprogramming.com/tutorial/c-tutorial.html
https://www.tutorialspoint.com/cplusplus/index.html
https://www.programiz.com/cpp-programminghttp://www.cplusplus.com/doc/tutorial/
https://www.learn-cpp.org/
https://www.javatpoint.com/cpp-tutorial

PRACTICAL COMPONENT: @ 2 HOURS/WEEK/BATCH.

1. Write C programs for
   a. Fibonacci Series
   b. Prime number
   c. Palindrome number
   d. Armstrong number.
2. 'C' program for multiplication of two matrices
3. 'C' program to implement string functions
4. 'C' program to swap numbers
5. 'C' program to calculate factorial using recursion.
6. 'C++' program to perform addition of two complex numbers using constructor
7. Write a program to find the largest of two given numbers in two different classes using friend function.
8. Program to add two matrices using dynamic constructor.
9. Implement a class string containing the following functions
   a. Overload + operator to carry out the concatenation of strings.
   b. Overload == operator to carry out the comparison of strings.
10. Program to implement inheritance.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

Measurable.

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging).
2. Student seminars (on topics of the syllabus and related aspects (individual activity).
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams).
4. Field studies (individual observations and recordings as per syllabus content andrelated areas (Individual or team activity).
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation andcontribution of students shall be ensured (team activity))

General.

1. Group Discussion.
2. Visit to Software Technology parks / industries.

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted:

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: III(Computer Applications)
Course(3C): Programming With C&C++

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Write the Structure of C program
2. Write about Break and Continue Statement.
3. What is recursion? Write an example program for recursion.
4. Write the Structure of C++ Program.
5. What is Inheritance? What are the types of Inheritance?
6. Write the Tokens and Constants in C Language.
7. Write Declaration and Initialization of String.
8. Write about operator overloading.

Section-B

Answer **FIVE** questions. **5X10=50M**

9. a) Write about Data Types and Operators in C Language.
   (OR)
   b) Write about If and Switch Statement with examples.

10. a) Write about types of Loops in C Language with Flow Charts and example syntax.
    (OR)
    b) Write about Array Declaration and Initialization and write a C program for Addition of two arrays.

11. a) Write about different types of String handling functions
    (OR)
    b) Explain Call by Value and Call by Reference with examples.

12. a) Explain about basic concepts of OOP.
    (OR)
    b) Write about Creating source file, Compiling and Linking.

13. a) Explain about types of Constructors.
    (OR)
    b) Explain about different types of Inheritances.

B Com	Semester: IV	Credits: 4
Course: 4A	CORPORATE ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the Accounting treatment of Share Capital and aware of process of book building.
- Demonstrate the procedure for issue of bonus shares and buyback of shares.
- Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments.
- Participate in the preparation of consolidated accounts for a corporate group.
- Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions.
- Communicate accounting policy choices with reference to relevant laws and accounting standards.

UNIT I:

Accounting for Share Capital: Kinds of Shares – Types of Preference Shares – Issue of Shares at Par, Discount and Premium - Forfeiture and Reissue of Shares (including problems).

UNIT II:

Issue and Redemption of Debentures and Issue of Bonus Shares: Accounting Treatment for Debentures Issued and Repayable at Par, Discount and Premium -Issue of Bonus Shares - Buyback of Shares - (including problems).

UNIT III:

Valuation of Goodwill: Need and Methods - Average Profit Method, Super Profits Method – Capitalization Method and Annuity Method (Including problems).

UNIT IV:

Valuation Shares: Need for Valuation - Methods of Valuation - Net Assets Method, Yield Basis Method, Fair Value Method (including problems).

UNIT V:

Company Final Accounts: Provisions of the Companies Act, 2013 - Preparation of Final Accounts – Adjustments Relating to Preparation of Final Accounts – Profit and Loss Account and Balance Sheet – (including problems with simple adjustments).

REFERENCE BOOKS:

1. Corporate Accounting – T.S Reddy and Murthy, MarghamPublications, Chennai.
2. Advanced Accounts: M C Shukla, T S Grewal and S C Gupta, S Chand Publications
3. Corporate Accounting – Haneef & Mukherji, Tata McGraw Hill Publications.
4. Corporate Accounting – RL Gupta & Radha Swami,Sultan Chand & sons
5. Corporate Accounting – P.C. Tulsian, S.Chand Publishers
6. Advanced Accountancy: Jain and Narang,,Kalyani Publishers
7. Advanced Accountancy: R.L. Gupta and M.Radhaswamy, S Chand.
8. Advanced Accountancy :Chakraborthy, Vikas Publishers
9. Corporate Accounting: S.N. Maheswari, S.K. Maheswari, Vikas Publishing House.
10. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand & Company
11. Corporate Accounting: Umamaheswara Rao, Kalyani Publishers
12. Corporate Accounting: Dr ChandaSrinivas, SevenHills International Publishers,
13. Advanced Accountancy: Arulanandam& Raman, Himalaya Publishing House.

Suggested Co-Curricular Activities:

- Assignments and Problem Solving Exercises.
- Collect and fill the share application form of a limited Company.
- Collect Prospectus of a company and identify its salient features.
- Collect annual report of a Company and List out its assets and Liabilities.
- Collect the annual reports of company and calculate the value of goodwill under different methods.
- Power point presentations on types of shares and share capital.
- Group Discussions on problems relating to topics covered by syllabus.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: IV
Course(4A): Corporate Accounting

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Forfeiture of Shares
2. Buyback of shares
3. Annuity Method of Goodwill
4. Fair value method
5. Companies Act, 2013
6. Equity Share Capital
7. Dividend
8. Goodwill

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) X Ltd. Forfeited 100 equity shares of Rs. 10 each held by Rooldu Ram on 15th December, 2015 for non-payment of First Call of Rs. 2 per share and the final call of Rs. 3 per share. These shares were re-issued to Mohan on 25th December 2015 at a discount of Rs. 3.50 per share. Pass journal entries.

(OR)

b) What are the advantages of Equity Share Capital and Preference Share Capital?

10. a) Explain the major sources where from the debentures can be redeemed.

(OR)

b) What is the purpose of issue of bonus shares? What are the conditions which have to be fulfilled while making such an issue?

11. a) RG and MK are the partners in the firm. Their capitals are 3, 00,000 and 2,00,000. During the year ended 31st March, 2010 the firm earned a profit of 1,50,000. Assuming that the normal rate of return is 20%. Calculate the value of goodwill of the firm:
    1. By capitalization method
    2. By super profit method if the goodwill is valued at 2 years purchase of super profit.

(OR)

b) Define goodwill. When may the need for evaluating goodwill arise in the case of a joint stock company?

12. a) Explain need for valuation and methods of valuation.

(OR)

b) From the following Balance Sheet of Sweetex Ltd. you are asked to-ascertain the value of each Equity Share of the company:

Liabilities	**Amount Rs.**		**Assets**	**Amount Rs.**
20,000 Equity Shares Rs. 10 each, fully paid		20,000	Good Will	30,000
1000, 6%Preference Shares of Rs.100 each, fully paid		1,00,000	Land And Building	1,00,000
Reserves	60,000		Plant and Machinery	1,20,000
Sundry Creditors	40,000		Investment(At Cost)	60,000
Provision for Taxation	20,000		Stock	50,000
Other Liabilities	10,000		Debtors	40,000
			Cash at Bank	24,000
			Preliminary Expenses	6,000
	4,30,000			**4,30,000**

For the purpose of valuing the shares of the company, the assets were revalued as: Goodwill Rs. 50,000; Land and Building at cost plus 50%, Plant and Machinery Rs. 1, 00,000; Investments at book values; Stock Rs. 80,000 and Debtors at book value, less 10%.

13.a) A limited company has an authorized capital of Rs.1,000,000 divided into 60,000 equity shares of Rs.10 each and 4,000, 10% preference shares of Rs.100 each out of which 50,000 equity share and 3,000 preference share were issued and fully paid up. The profit for the year 2019 being the first year of operation amounted to Rs.1,80,000 after income tax. The directors decided to declare a dividend of 22% on the equity share capital after.

i. Statutory minimum requirement transfer to computer applications reserve

ii. Provision of dividend on preference shares.

Prepare profit and loss appropriation account and show liabilities side of the balance sheet.

(OR)

b) What are the salient features and provisions of Companies Act, 2013.

B Com	Semester: IV	Credits: 4
Course: 4B	COST AND MANAGEMENT ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand various costing methods and management techniques.
- Apply Cost and Management accounting methods for both manufacturing and service industry.
- Prepare cost sheet, quotations, and tenders to organization for different works.
- Analyze cost-volume-profit techniques to determine optimal managerial decisions.
- Compare and contrast the financial statements of firms and interpret the results.
- Prepare analysis of various special decisions, using relevant management techniques.

UNIT I:

Introduction: Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Management Accounting: Features – Objectives – Functions –
Elements of Cost - Preparation of Cost Sheet (including problems)

UNIT II:

Material and Labour Cost: Techniques of Inventory Control – Valuation of Material Issues: FIFO - LIFO - Simple and Weighted Average Methods. Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages- Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowan Methods and Taylor Methods only(including problems)

UNIT III:

Job Costing and Batch Costing: Definition and Features of Job Costing – Economic Batch Quantity (EBQ) – Preparation of Job Cost Sheet – Problems on Job Cost Sheet and Batch Costing(including problems)

UNIT IV:

Financial Statement Analysis and Interpretation:Financial Statements - Features, Limitations. Need, Meaning, Objectives, and Process of Financial Statement Analysis- Comparative Analysis – Common Size Analysis and Trend Analysis (including problems)

UNIT V:

Marginal Costing: Meaning and Features of Marginal Costing – Contribution –Profit Volume Ratio- Break Even Point – Margin of Safety – Estimation of Profit and Estimation of Sales(including problems).

REFERENCES BOOKS:

1. S.P. Jain and K.L. Narang – Advanced Cost Accounting, Kalyani Publishers.
2. M.N. Arora – A test book of Cost Accounting, Vikas Publishing House Pvt. Ltd.
3. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons.
4. Nigam & Sharma – Cost Accounting Principles and Applications, S.Chand& Sons.
5. S.N. Maheswari– Principles of Management Accounting, Sultan Chand & Sons.
6. I.M.Pandey – Management Accounting, Vikas Publishing House Pvt. Ltd.
7. Sharma & Shashi Gupta – Management Accounting, Kalyani Publishers.
8. Murthy & Guruswamy – Management Accounting, Tata McGraw Hill, New Delhi.
9. S.P. Gupta – Management Accounting, S. Chand Publishing, New Delhi.
10. Umamaheswara Rao and Ranganath, Cost Accounting, Kalyani Publishers.
11. Dr V Murali Krishna – Cost Accounting, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Debate on methods of payments of wages.
- Seminars and Problem Solving Exercises .
- Seminar on need and importance of financial statement analysis.
- Graphs showing the breakeven point analysis.
- Identification of elements of cost in services sector by Visiting any service firm
- Cost estimation for the making of a proposed product.
- Listing of industries located in your area and methods of costing adopted by them.
- Collection of financial statements of any two organization for two years and prepare a common Size Statements. Collection of cost sheet and pro-forma of quotation.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: IV
Course(4B): Cost And Management Accounting

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Elements of Cost
2. Time Rate Method
3. EBQ
4. Trend Analysis
5. Profit Volume Ratio
6. Job Costing
7. Cost Sheet
8. Inventory Control

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Cost Accounting. Briefly explain the objectives and functions of Cost Accounting.

(OR)

b) Distinguish between Cost Accounting and Management Accounting

10. a) From the following details write Store Ledger under simple average method:

2006			
DEC	1	Opening Balance	100Kg @ Rs. 5.00
"	5	Received	50Kg @ Rs. 5.20
"	8	Issued	120Kg
"	10	Issued	10Kg
"	15	Received	80Kg @ Rs. 5.40
"	18	Issued	50Kg
"	20	Received	100Kg @ Rs. 5.60
"	25	Issued	40Kg
"	29	Issued	60Kg

The stock verifier found a shortage of 10 kg. on 16.12.06 and another shortage of 10 kg on 26.12.06.

(OR)

b) Define 'Labour Turnover'. How is it measured? Explain.

11. a) Distinguish between Job costing and batch costing.

(OR)

b) Annual demand for a component is 30,000 units. Cost of set-up per batch is Rs.600. Inventory carrying cost per unit per annum is Rs.1. (i) Calculate the total cost assuming batch size of 4,000 units, 5,000 units, 6,000 units, 7,000 units, 8,000 units, 9,000 units and 10,000 units. Also find the economic batch quantity. (ii) Using mathematical formula calculate economic batch quantity.

12. a) Define financial statement analysis. Explain the objectives and process of financial statement analysis.

(OR)

b) Briefly explain comparative analysis and common-size analysis.

13. a) Define Marginal Costing. Explain the features and importance of marginal costing.

(OR)

b) From the following data, you are required to calculate:

(i) P/V ratio

(ii) Break-even sales with the help of P/V ratio.

(iii) Sales required to earn a profit of Rs. 4,50,000

Fixed Expenses = Rs. 90,000
Variable Cost per unit:
Direct Material = Rs. 5
Direct Labour = Rs. 2
Direct Overheads = 100% of Direct Labour
Selling Price per unit = Rs. 12.

B Com	Semester: IV	Credits: 4
Course: 4C	INCOME TAX	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.
- Understand the provisions and compute income tax for various sources.
- Grasp amendments made from time to time in Finance Act.
- Compute total income and define tax complicacies and structure.
- Prepare and File IT returns of individual at his own.

UNIT I:

Introduction: Income Tax Act-1961 - Basic Concepts: Income, Person, Assessee - Assessment Year, Previous Year, Rates of Tax, Agricultural Income,ResidentialStatusof Individual -Incidence of Tax – Incomes Exempt from Tax (theory only).

UNIT II:

Income from Salaries: Basis of Charge, Tax Treatment of Different Types of Salaries Allowances, Perquisites, Profits in Lieu of Salary, Deductions from Salary Income, Computation of Salary Income (including problems).

UNIT III:

Income from House Property and Profits and Gains from Business: Annual Value, Let-out/Self Occupied/Deemed to be Let-out house -Deductions from Annual Value - Computation of Income from House Property, Definition of Business and Profession – Procedure for Computation of Income from Business – Revenue and Capital Nature of Incomes and Expenses – Allowable Expenses – Expenses Expressly Disallowed – Computation (including problems).

UNIT IV:

Income from Capital Gains - Income from Other Sources: Meaning of Capital Asset – Types – Procedure for Computation of Long-term and Short-term Capital Gains/Losses
Meaning of Other Sources - Computer applications Incomes – Specific Incomes – Computation (including problems).

UNIT V: Computation of Total Income of an Individual: Deductions under Section 80 - Computation of Total Income (Simple problems).

REFERENCE BOOKS:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

Suggested Co-Curricular Activities:

- Seminar on different topics of Income tax and Quiz programs, also Problem Solving Exercises.
- Debate on Tax Evasion and Avoidance.
- Practice of provisions of Taxation.
- Talk on Finance Bill at the time of Union Budget.
- Guest lecture by Chartered Accountant.
- Presentation of tax rates and Practice of filing IT Returns online.
- Group Discussions on problems relating to topics covered by syllabus.
- Examinations (Scheduled and surprise tests)

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: IV
Course(4C): Income Tax

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Assessee
2. Agriculture Income
3. Perquisites
4. Gratuity
5. Self-occupied Property
6. Capital Asset
7. Interest on Securities
8. Total Income

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) What are the different categories of assesses according to their residential status? How is this status determined?

(OR)

b) Enumerate any ten items which are exempt from charge of Income-tax U/S 10.

10. a) Balu is employed by P Ltd in Pune. During the previous year, he gets the following emoluments: Basic salary: Rs. 1,86,000; dearness allowance: Rs. 12,300 (forming part of salary); city compensatory allowance: Rs. 3,100; children's education allowance: Rs. 2,340 (for 3 children); Bonus Rs.15,000; house rent allowance: Rs. 16,200 (rent paid: Rs. 20,000). Employer's contribution towards recognized provident fund Rs.20,000; Balu's contribution towards recognized provident fund Rs.40000; Income of Balu from other sources in India 80,000; Find out the taxable income and tax liability of Balu for the assessment year 2016-2017.

(OR)

b) Discuss various deductions available under the head salary.

11. a) What are the incomes chargeable under the head "Profits and Gains of Business or Profession?

(OR)

b) A owns two houses, I & II. House I is let-out throughout the previous year. House II is self-occupied for nine months and let-out for three months on a monthly rent of Rs 5,000. Determine Taxable income, given the following details.

	House I	House I
Municipal Value	40000	50000
Fair Rent	50000	48000
Rent Received	48000	15000
Municipal Taxes paid	4000	5000
Insurance Premium (not yet paid)	2000	2500
Ground Rent	1000	1500
Maintenance Charges	3000	3500
Electricity Bill	5000	6000

12. a) Discuss the provisions of the IT Act, 1961 regarding: (i) Conversion of Capital Assets to Stock in Trade; (ii) Computation of Capital Gains in case of depreciable assets.

(OR)

b) Briefly explain computer applications income and special incomes from other sources.

13. a) Briefly explain the deductions U/S 80.

(OR)

b) What is the procedure for computation of total income with examples?

B Com	Semester: IV	Credits: 4
Course: 4D	BUSINESS LAW	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the legal environment of business and laws of business.
- Highlight the security aspects in the present cyber-crime scenario.
- Apply basic legal knowledge to business transactions.
- Understand the various provisions of Company Law.
- Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade.

UNIT I:

Contract: Meaning and Definition of Contract - Essential Elements of Valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872

UNIT II:

Offer, Acceptance and Consideration: Definition of Valid Offer, Acceptance and Consideration - Essential Elements of a Valid Offer, Acceptance and Consideration.

UNIT III:

Capacity of the Parties and Contingent Contract:

Rules Regarding to Minors Contracts - Rules Relating to Contingent Contracts - Different Modes of Discharge of Contracts - Rules Relating to Remedies to Breach of Contract.

UNIT IV:

Sale of Goods Act 1930 and Consumer Protection Act 2019:

Contract of Sale - Sale and Agreement to Sell - Implied Conditions and Warranties - Rights of Unpaid Vendor- Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Mechanism.

UNIT V:

Cyber Law: Overview and Need for Cyber Law - Contract Procedures - Digital Signature-Safety Mechanisms.

REFERENCES BOOKS:

1. J. Jaysankar, Business Laws, Margham Publication. Chennai.
2. ND Kapoor, Business Laws, S Chand Publications.
3. Balachandram V, Business law, Tata McGraw Hill.
4. Tulsian, Business Law, Tata McGraw Hill.
5. Pillai Bhagavathi, Business Law,SChand Publications.
6. Business Law, Seven Hills Publishers, Hyderabad.
7. K C Garg, Business Law, Kalyani Publishers.

Suggested Co-Curricular Activities:

- Seminar on Basics of Indian Contract Act,1872.
- Quiz programs.
- Co-operative learning.
- Seminar on Cyber Law.
- Group Discussions.
- Debate on Offer, Agreement, and Contract.
- Creation of Contract by abiding rules of Indian Contract Act,1872.
- Making a sale by abiding rules of Sale of Goods Act,1930.
- Guest lecture by a Lawyer/Police officer.
- Celebrating consumers day by creating awareness among the students.
- Examinations (Scheduled and surprise tests) .
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: IV
Course(4D): Business Law

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Agreement
2. Acceptance
3. Minor
4. Unpaid Vendor
5. Digital Signature
6. Breach of Contract
7. Unsound Mind
8. Consumer

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) "All contracts are agreements but all agreements are not contract"…Explain.

(OR)

b) What are the salient features and classification of contracts under Indian Contact Act, 1872.

10. a) What are the essentials of consideration?

(OR)

b) What is offer and Invitation to offer?

11. a) Briefly explain various modes of discharge of contract.

(OR)

b) Explain the rules relating to contingent contracts.

.

12. a) What are the salient features and contents of Sale of Goods Act, 1930?

(OR)

b) Explain the rights of a consumer under Consumer Protection Act, 2019.

13. a) Explain an overview and need for Cyber Law.

(OR)

b) What is contract procedures and safety mechanism for Cyber Laws.

B Com	Semester: IV	Credits: 4
Course: 4E	AUDITING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understanding the meaning and necessity of audit in modern era.
- Comprehend the role of auditor in avoiding the corporate frauds.
- Identify the steps involved in performing audit process.
- Determine the appropriate audit report for a given audit situation.
- Apply auditing practices to different types of business entities.
- Plan an audit by considering concepts of evidence, risk and materiality

UNIT I:

Introduction: Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing - Accounting vs Auditing – Role of Auditor in Checking Corporate Frauds.

UNIT II:

Types of Audit: Based on Ownership, Time and Objective - Independent, Financial, Internal, Cost,Tax, Government, Secretarial Audits

UNIT III:

Planning of Audit: Steps to be taken at the Commencement of a New Audit – Audit Programme - Audit Note Book– Audit Working Courses - Audit Evidence - Internal Check, Internal Audit and Internal Control.

UNIT IV:

Vouching and Investigation: Definition and Importance of Vouching – Objectives of Vouching - Vouching of Cash and Trading Transactions – Investigation - Auditing vs. Investigation

UNIT V:

Company Audit and Auditors Report: Auditor's Qualifications – Appointment andReappointment – Rights, Duties, Liabilities and Disqualifications - Audit Report: Contents –Preparation - Relevant Provisions of Companies Act, 2013.

REFERENCESBOOKS:

1. S.Vengadamani, “Practical Auditing”, Margham Publications, Chennai.
2. Ghatalia, “Principles of Auditing”, Allied Publishers Pvt. Ltd., New Delhi.
3. Pradeesh Kumar, BaldevSachdeva&Jagwant Singh,

“Auditing Theory and Practice,Kalyani Publications
4. N.D. Kapoor, “Auditing”, S Chand, New Delhi.
5. R.G. Saxena, “Principles and Practice of Auditing”, Himalaya Publishing House New Delhi
6. JagadeshPrakesh, “Principles and Practices of Auditing”, Kalyani Publications
7. Kamal Gupta and Ashok Gupta, “Fundamentals of Auditing”, Tata McGraw Hill
8. B.N. Tondan, “Practical Auditing”, S.Chand, New Delhi.
9. K J Vijaya Lakshmi & A S Roopa, Auditing, Seven Hills International Publishers, Hyderabad

Suggested Co-Curricular Activities:

- Seminars.
- Visit the audit firms.
- Visit an audit firm, write about the procedure followed by them in Auditing the books of accounts of a firm.
- Guest lecture by an auditor.
- Collect the information about types of audit conducted in any one Organization.
- Collection of audit reports and Group Discussions.
- Draft an audit program.

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: IV
Course(4E): Auditing

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Book Keeping Vs Auditing
2. Government Audit
3. Audit Note Book
4. Investigation
5. Audit Report
6. Internal Check
7. Cost Audit
8. Vouching

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) What are the objectives and importance of auditing?

(OR)

b) Explain the role and responsibilities of auditor in checking corporate frauds.

10. a) Briefly explain various types of audit.

(OR)

b) Explain the merits and demerits of Financial Audit and Internal Audit.

11. a) What are the steps to be taken at the commencement of a New Audit?

(OR)

b) Define Internal Control. Why to have internal control? Explain the elements of a good system of Internal Control.

12. a) What are the basic objectives and functions of Vouching?

(OR)

b) Distinguish between Auditing and Investigation.

13. a) Briefly explain the rights and duties of Auditors.

(OR)

b) State the provisions of the Companies Act, 2013 regarding qualification, appointment and removal of auditors.

B Com	Semester: IV(Computer Applications)	Credits: 4
Course: 4F	DATA BASE MANAGEMENT SYSTEMS	Hrs/Wk: 5

Learning Outcomes for Database Management System.

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge.

1. Understand the role of a database management system in an organization.
2. Understand basic database concepts, including the structure and operation of the relational data model.
3. Understand and successfully apply logical database design principles, including ER diagrams and database normalization.
4. Understand Functional Dependency and Functional Decomposition

B. Explains (Understanding).

5. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
6. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Packages.

C. Critically examines, using data and figures (Analysis and Evaluation).

7. Apply various Normalization techniques.
8. Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model

D. Working in 'Outside Syllabus ***Area' under a Co-curricular Activity***(Creativity) Design and implement a small database project

E. Construct simple and moderately advanced database queries using Structured Query Language (SQL)(Practical skills)

UNIT I:

Overview of Database Management System: Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management System, Classification of Database Management System.

UNIT II:

File-Based System: File Based System. Drawbacks of File-Based System, DBMS Approach, Advantage of DBMS, Data Models, Components of Database System, Database Architecture,DBMS Vendors and their products.

UNIT III:

Entity-Relationship Model: Introduction, The Building Blocks of an Entity-Relationship, Classification of Entity Set, Attribute Classification, Relationship Degree, Relationship Classification, Generalization and Specialization, Aggregation and Composition, CODD's Rules, Relational Data Model, Concept of Relational Integrity.

UNIT IV:

Structured Query Language: Introduction, History of SQL Standards, Commands in SQL, Data types in SQL, Data Definition Language (DDL),Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations.

UN IT V:

PL/SQL: Introduction, Structure of PL/SQL,PL/SQL Language Elements, Data Types, Control Structure, Steps to Create a PL/SQL Program, Iterative Control Cursors, Steps to Create a Cursor, Procedure, Functions, Packages, Exceptions Handling, Database Triggers, Types of triggers.

LEARNING RESOURCES:

REFERENCES:

1. Paneerselvam:Database Management system, PHI.
2. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3. Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4. Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5. MARTIN,Database Management-Prentice Hall of India, New Delhi.
6. Bipin C.Desai ,`An Introduction to Database System`,Galgotia Publications.
7. Korth, Database Management System.
8. Navathe, Database Management System.
9. S. Sumathi, S. Esakkirajan,Fundamentals of Relational Database Management System

Online resources:

http:// www.onlinegdb.com/
http:// www.tutorialspoint.com/
http://learnsql.com
https://www.codecademy.com/learn/learn-sql/
https://www.w3schools.com/sql/default.asp

PRACTICAL COMPONENT: @ 2 HOURS/WEEK/BATCH.

1. Create tables department and employee with required constraints.
2. Initially only the few columns (essential) are to be added. Add the remaining columns separately by using appropriate SQL command.
3. Basic column should not be null.
4. Add constraint that basic should not be less than 5000.
5. Calculate HRA, DA, Gross and net by using PL/SQL program.
6. The percentage of HRA and DA are to be stored separately.
7. When the DA becomes more than 100%, a message has to be generated and

with user permission has to be merged with basic.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

Measurable.

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging).
2. Student seminars (on topics of the syllabus and related aspects (individual activity).
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams).
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity).
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

General

1. Group Discussion
2. Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted:

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

MODEL QUESTION COURSE – THEORY
B.Com. DEGREE EXAMINATIONS
Semester: IV(Computer Applications)
Course(4F): Data Base Management Systems

Time: 3 Hours. Max Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. What is the difference between Data and Information?
2. Write the advantages of DBMS.
3. Write about classification of Entity Set?
4. What are the Data Types in SQL?
5. Write the steps to create PL/SQL program.
6. What are the components of DBMS?
7. What is the Concept of Relational Integrity?
8. Write about Cursors.

Section-B

Answer **FIVE** questions. **5X10=50M**

9. a) Explain about Classification of Database Management System.

(OR)

b) Explain about Objectives of Database Management System.

10. a) Explain about Data Models.

(OR)

b) Explain about Database architecture.

11. a) Explain about Aggregation and Composition.

(OR)

b) Explain about concepts of ER Model with an example.

12. a) Explain about Data Definition Language commands with syntax.

(OR)

b) Explain the aggregate functions in SQL with syntax.

13. a) Explain about Exception Handling with example program.

(OR)

b) Explain about different types of Triggers.

UG Program (4 Years Honors)
CBCS- 2020-21

B. Com
GENERAL

Syllabus and Model Question Papers

TABLE OF CONTENTS

S. No.	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of Course titles & Credits	4
	a. Proposed combination subjects:	4
	b. Student eligibility for joining in the course:	4
	c. Faculty eligibility for teaching the course	4
	d. List of Proposed Skill enhancement courses with syllabus, if any	4
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	4
	f. Required instruments/software/ computers for the course	4
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	5
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	5
	i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent	5
3	Program objectives, outcomes, co-curricular and assessment methods	5
4	Details of course-wise syllabus for Theory and Lab	7
5	Model Question Courses for Theory and Lab	9
6	Details of Syllabus on Skill Enhancement courses and Model Question Courses for Theory and Lab	

1. Resolutions of the Board of Studies:

Meeting held on:22/01/2021Time: 10.00 Am

At: NTR Convention Centre, Adikavi Nannaya University Campus, Rajamahendravaram

Agenda: As per the directions and guidelines/modalities issued by the APSCHE for revising the curriculum framework and updating the syllabus as out-come based B. Com programme to be effect from 2020-21 academic year under CBCS for implementing in all affiliated colleges of AKNU

Members present:

Dr. N. Udaya Bhaskar	Chairman, Dept. of Commerce and Management Studies, Adikavi Nannaya University, Rajamahednravaram, East Godavari District
Dr.J.Sanath Kumar	Member, RRDS Govt Degree College, Bhimavaram, West Godavari District
Dr. Kopparthi Ammaji	Member, BGBS Women's College, Narsapur, West Godavari District
Dr. K. Ratna Manikyam	, Member, Dept. of Commerce, Govt. College (A), Rajahmundry
Dr. M. Ramesh	Member, Dept. of Commerce and Management, Adikavi Nannaya University, Rajamahednravaram, East Godavari District

Resolutions: The B.COM board of Studies for B. Com (General) is resolved the following implementation subject to approval.

1. Adoption of revised-common programme structure and updating course-wise syllabi as per the guidelines issued by APSCHE.
2. Adoption of regulations on scheme of examination and marks/grading system of the University B.COM programme.
3. Preparation of Model question Courses in prescribed format.
4. Eligibility of student for joining the course.
5. List of Course-setters/Course evaluators with phone, email id in the prescribed format.

DETAILS OF COURSES TITLES AND CREDITS

Sem	Course No	Course Name	Course Type (T/P/L)	Hrs/Week	Credits	Max. Marks	Max. Marks
				Commerce:5	Commerce:4	Count/Internal/ Mid Assessment	Sem- End Exam
I	1A	Fundamentals of Accounting	T	5	4	25	75
	1B	Business Organization and Management	T	5	4	25	75
	1C	Business Environment	T	5	4	25	75
II	2A	Financial Accounting	T	5	4	25	75
	2B	Business Economics	T	5	4	25	75
	2C	Banking Theory & Practice	T	5	4	25	75
III	3A	Advanced Accounting	T	5	4	25	75
	3B	Business Statistics	T	5	4	25	75
	3C	Marketing	T	5	4	25	75
IV	4A	Corporate Accounting	T	5	4	25	75
	4B	Cost and Management Accounting	T	5	4	25	75
	4C	Income Tax	T	5	4	25	75
	4D	Business Laws	T	5	4	25	75
	4E	Auditing	T	5	4	25	75
	4F	Goods and Service Tax	T	5	4	25	75

Note: * Course Type Code : T-Theory, L - Lab, P: Problem solving

a) Proposed combination subjects: Accounting and Commerce.

b) Student eligibility for joining in the course: 10+2 (any discipline), Open Inter School and its equivalent.

c) Faculty eligibility for teaching the course: Passed Post Graduation Degree with relevant specialization and also having higher qualification like SET/NET/Ph. D.

d) List of Proposed Skill enhancement courses with syllabus, if any.

e) Any newly proposed Skill development/Life skill courses with draft syllabus and required resources.

f) Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students).

g) List of Suitable levels of positions eligible in the Govt/Pvt organizations . Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification.

S.No.	Position	Company/ Govt organization	Remarks	Additional skills required, if any
01	Accountant	Any Govt./Private Organization		
02	Supporting Staff	Any Govt./Private Organization		
03	Clerk	Banking Industry		
04	Entrepreneur	Own Business		

h) List of Govt. organizations / Pvt companies for employment opportunities or internships or projects.

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
01	Service Industry	Junior Assistant/Senior Assistant/LDC/UDC/Clerck		
02	Manufacturing Industry	Accountant/Cashier/Clerck		
03	Hotel Industry	Accountant/Cashier		
04	Banking Sector	Cashier/Asst. Cader/Clerical		

i) Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent.

3. Program objectives, outcomes, co-curricular and assessment methods.

B. Com	General

1. Aim and objectives of B. Com program:
The B. Com programme aims to make the students employable and self employment oriented (Self employable). It aims to make the students learn the writing and interpretation of books of accounts, be conversant with the financial and economic environment and acquire the management skills required to manage the business.

2. Learning outcomes of B. Com:

- ❖ This program could provide Industries, Banking Sectors, Insurance Companies, Financing companies, Transport Agencies, Warehousing etc., well trained professionals to meet the requirements.
- ❖ After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, over all Administration abilities of the Company.
- ❖ Capability of the students to make decisions at personal & professional level will increase after completion of this course. Students can independently start up their own Business.
- ❖ Students can get thoroB.Comh knowledge of finance and commerce.

- ❖ The knowledge of different specializations in Accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work.

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

A. Measurable:

1. Assignments on:
2. Student seminars (Individual presentation of Courses) on topics relating to:
3. Quiz Programmes on:
4. Individual Field Studies/projects:
5. Group discussion on:
6. Group/Team Projects on:

B General

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus .
2. Group Discussions on: Subject related matters.
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers.
4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

Some of the following sB.Comgested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests).
2. Closed-book and open-book tests.
3. Coding exercises.
4. Practical assignments and laboratory reports.
5. Observation of practical skills.
6. Individual and group project reports.
7. Efficient delivery using seminar presentations.
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations.
10. Peers and self-assessment, outputs form individual and collaborative work.

4.Details of course-wise Syllabus:

DETAILS OF COURSE WISE SYLLABUS

B.Com	Semester: I	Credits: 4
Course: 1A	FUNDAMENTALS OF ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organisations.

UNIT I:

Introduction : Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

UNIT II:

S**ubsidiary Books:** Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).

UNIT III:

Trial Balance and Rectification of Errors: Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)

UNIT IV:

Bank Reconciliation Statement: Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).

UNIT V:

Final Accounts: Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

TEXT BOOKS:

1. Ranganatham G and Venkataramanaiah, Fundamentals of Accounting, S Chand Publications.
2. T.S.Reddy& A. Murthy, Financial Accounting, Margham Publications.
3. S N Maheswari and SK Maheswari, Financial Accounting, Vikas Publications.
4. R L Gupta & V K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons.
5. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers.
6. Tulasian, Accountancy -I, Tata McGraw Hill Co.
7. V.K.Goyal, Financial Accounting, Excel Books **.**
8. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications.
9. Prof EChandraiah : Financial Accounting Seven Hills International Publishers.

SB.Comgested Co-Curricular Activities:

- Bridge Course for Non-commerce Students.
- Practice of Terminology of Accounting .
- Quiz, Word Scramble.
- Co-operative learning.
- Seminar.
- Co-operative learning .
- Problem Solving Exercises.
- Matching, Mismatch.
- Creation of Trial Balance.
- Visit a firm (Individual and Group).
- Survey on sole proprietorship and prepare final accounts of concern.
- Group Discussions on problems relating to topics covered in syllabus.
- Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: I
GENERAL
Course 1A: Fundamentals of Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Bookkeeping.
2. Petty Cash Book.
3. Suspense Account.
4. Need for Bank Reconciliation.
5. Trading Account.
6. Accounting Cycle.
7. Journal Proper.
8. Trial Balance .

Section-B

Answer **FIVE** questions **5X10=50M**

9. a). What are the advantages and limitations of Double Entry System?

(OR)

b). Briefly explain accounting concepts and conventions.

10. a) Explain various types of subsidiary books.

(OR)

b) Prepare Triple Column Cash Book from the following information of Koushik.

1st March 2020

1. Cash in hand Rs.1532 and balance at bank Rs.18500.
2. Received from Salman Rs.590 and allowed him discount Rs.10.
3. Paid salaries for the month of February Rs.200.
4. Purchased merchandise payment made by cheque Rs.3200.
8. Paid Bilal & Co by cheque Rs.800 discount received Rs.20.
10. Withdrew from bank for office use Rs.400. paid rent in cash Rs.300.
14. Deposited into bank Rs.500.
15. Cash sales Rs.2460.
18. Purchased a motor car for Rs.6500 payment made by cheque.
23. Received a cheque from Salman for Rs.391 discount Rs.9.
25. Paid wages Rs.350.
28. Salman cheque paid into bank.
29. Paid general expenses Rs.360.
31. Bank informed that Salman's cheque has been dishonored.
31. Cash sales Rs.6440.

11. a) Briefly explain the advantages and limitations of trial balance

(OR)

b).Define Error. Briefly explain various types of erros.

12. a) Write the reasons for difference between pass book and cash book for bank reconciliation.

(OR)

(b) From the following particulars, prepare a Bank Reconciliation Statement for M/s Ramesh Traders as at 31st December, 2020.

i. Bank Balance as per cash book 8,000

ii. Two cheques were issued for 18,000 and 12,000 respectively, of which the cheque for 12,000 was presented on 4rd January next year.
iii. Cheque for 6,000 deposited on 25th was collected and credited by the bank on 4th January.
iv. Dividends collected by the bank 1,800 not recorded in the cash book.
v. Information relating to 4,600 deposit made by a debtor directly into the bank account has not yet been received.
vi. Bank charges 750 have been debited to the account by the bank on 31st December.

13. a) Distinguish between Profit and Loss Account and Balance Sheet.

(OR)

b) From the following Trial Balance of Ramesh as on 31st March 2020, prepare Trading and Profit and Loss account and Balance sheet taking into account the adjustments.

Trial Balance

Debit Balances Rs.	**Credit Balances Rs.**
Purchases 2,00,000	Capital 3,00,000
Salaries 10,000	Sales 2,50,000
Rent 7,500	Creditors 1,05,000
Insurance premium 1,500 .	
Drawings 50,000	
Machinery 1,40,000	
Cash at bank 22,500	
Computers 1,25,000	
Furniture 50,000	
Cash 10,000 O	
pening Stock 26,000	
Sundry debtors 12,500	

Adjustments:

1. Closing stock as on 31.3.2015 Rs. 39,000
2. Rent outstanding Rs. 1,000
3. Provide interest on capital @ 10% and on Drawings @ 8%.
4. Depreciation on Machinery @10% and Furniture @ 5%

B.Com	Semester: I	Credits: 4
Course: 1B	BUSINESS ORGANIZATION AND MANAGEMENT	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will be able to:

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulate new models of business organizations.

UNIT I:

Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organisation.

UNIT II:

Forms of Business Organizations: Features, Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company.

UNIT III:

C**ompany Incorporation:** Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association - Contents of Prospectus.

UNIT IV:

Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs Management - Levels of Management.

UNIT V:

Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organisation – Line and staff of Organisation.

REFERENCE BOOKS:

1. Industrial Organization and Management,C.B.Guptha, Sultan Chand.
2. Business Organization - C.D.Balaji and G. Prasad, Margham Publications, Chennai.
3. Business Organization -R.K.Sharma and Shashi K Gupta, Kalyani Publications.
4. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: M.C. Shukla S. Chand,
7. Business Organisation and Management, Dr.NeeruVasishth, Tax Mann Publications.
8. Business Organisation and Management, Dr B E V L Naidu, Seven Hills International Publishers, Hyderabad .

SB.Comgested Co-Curricular Activities:

- Book Reading
- Student Seminars, Debates
- Quiz Programmes
- Assignments
- Co-operative learning
- Individual / Group Field Studies
- Group Discussions on problems relating to topics covered by syllabus
- Collecting prospectus of different companies throB.Comh media
- Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
- Talk on current affairs about business, industry etc.
- Simple project work on development of Certificate of Incorporation, Prospectus and Certificate of commencement of business
- Biography of well-known management thinkers and managers of gigantic companies
- Examinations (Scheduled and surprise tests).

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: I
GENERAL
Course1B: Business Organization And Management

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Industry
2. Public Sector Enterprises
3. Prospectus
4. Administration
5. Organization
6. Commerce
7. MNCs
8. Line and Staff

Section-B

Answer **FIVE** questions **5X10=50M**

9 a) Define Trade. Briefly explain classification of trade.

(OR)

b) Define Business. What are the features and functions of Business.

10 a) What are the merits and demerits of Sole Proprietorship.?

(OR)

b) Distinguish between Private Limited Company and Public Limited Company.

11 a) Define Memorandum of Association. Explain its clauses.

(OR)

b) Briefly explain Articles of Association and its contents.

12 a) Explain the functions of Management.

(OR)

b) Explain Fayol's 14 Principles of Management.

13 a) Briefly explain merits and demerits of Planning.

(OR)

b) What are the steps involved in Planning?

B.Com	Semester: I	Credits: 4
Course: 1C	BUSINESS ENVIRONMENT	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the concept of business environment.
- Define Internal and External elements affecting business environment.
- Explain the economic trends and its effect on Government policies.
- Critically examine the recent developments in economic and business policies of the Government.
- Evaluate and judge the best business policies in Indian business environment.
- Develop the new ideas for creating good business environment.

UNIT I:

Overview of Business Environment: Business Environment – Meaning – Characteristics – Scope - Macro and Micro Dimensions of Business Environment - Environmental Analysis.

UNIT II:

Economic Environment: Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans.

UNIT III:

Economic Policies: Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI

UNIT IV:

Social, Political and Legal Environment: Concept of Social Responsibility of Business towards Stakeholders - Demonetisation, GST and their Impact - Political Stability - Legal Changes.

UNIT V:

Global Environment : Globalization – Meaning – Role of WTO – WTO Functions - IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalisation.

SB.COMGESTED READINGS:

1. K. Aswathappa : Essentials of Business Environment, Himalaya Publishing House.
2. Francis Cherunilam : Business Environment, Himalaya Publishing House .
3. Dr S Sankaran: : Business Environment, Margham Publications.
4. S.K. Mishra and V.K. Puri : Economic Environment of Business, HPH.
5. Rosy Joshi and Sangam Kapoor : Business Environment, Kalyanai Publications.
6. A C Fernando: Business Environment, Pearson.
7. Dr V Murali Krishna, Business Environment, Spectrum Publications.
8. Namitha Gopal, Business Environment, McGraw Hill.

SB.Comgested Co-Curricular Activities:

- Seminar on overview of business environment.
- Debate on micro v/s macro dimensions of business environment.
- Co-operative learning.
- Seminar on Monetary policies of RBI.
- Debate on social, political and legal environment.
- Group Discussions on Global environment and its impact on business.
- To learn about NITI Ayog and National Development Council.
- Seminars on Economic policies like New Industrial policy, Fiscal policy etc.
- Reports on WTO, BRICS, SAARC etc.
- Examinations (Scheduled and surprise tests) on all units

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: I
GENERAL
Course 1C: Business Environment

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Environment Analysis.
2. Structure of Economy.
3. Fiscal Policy.
4. GST.
5. Trade Blocks.
6. NITI Ayog.
7. Competition Law.
8. Economic Policy.

SECTION- B

Answer **FIVE** questions **5X10=50M**

9. a) Define Business Environment. What factors influencing business environment?
(OR)
b) Describe the components and significance of business environment.

10. a) What do you mean by Economic Planning? Explain brief view of Five-Year Plans.
(OR)
b) Briefly explain the economic policies and planning the economic conditions.

11 a) Define Industrial Policy. Explain Industrial Policy 1991.
(OR)
b) What are the importance and regulations of New Economic Policy?

12. a) What are the social, political factors influencing Business Environment?
(OR)
b) Briefly explain the concept and objectives of social responsibility of business towards stakeholders.

13. a) Briefly explain the role of SAARC and BRICS in Globalization.
(OR)
b) What are the objectives, functions and organization structure of WTO?

B.Com	Semester: II	Credits: 4
Course: 2A	FINANCIAL ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course the student will able to:

- Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- Analyze the accounting process and preparation of accounts in consignment and joint venture.
- Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.
- Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.
- Design an accounting system for different models of businesses at his own using the principles of existing accounting system.

UNIT I:

Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line – Written Down Value –Annuity and Depletion Method (including Problems).

UNIT II:

Provisions and Reserves: Meaning – Provision vs. Reserve – Preparation of Bad Debts Account – Provision for Bad and Doubtful Debts – Provision for Discount on Debtors– Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).

UNIT III:

Bills of Exchange: Meaning of Bill – Features of Bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (including Problems).

UNIT IV:

Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales – Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).

UNIT V:

Joint Venture Accounts: JointVenture - Features - Difference between Joint- Venture and Consignment – Accounting Procedure – Methods of Keeping Records–One Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).

REFERENCE BOOKS:

1. Ranganatham G and Venkataramanaiah, **Financial Accounting-II,** S Chand Publications, New Delhi.
2. T. S. Reddy and A. Murthy - **Financial Accounting**, Margham Publications.
3. R.L. Gupta & V.K. Gupta, **Principles and Practice of Accounting**, Sultan Chand.
4. SN Maheswari and SK Maheswari – **Financial Accounting**, Vikas Publications.
5. S.P. Jain & K.L Narang,**Accountancy-I**, Kalyani Publishers.
6. Tulsan, **Accountancy-I**, Tata McGraw Hill Co.
7. V.K. Goyal, **Financial Accounting**, Excel Books.
8. T.S. Grewal, **Introduction to Accountancy**, Sultan Chand & Co.
9. Haneef and Mukherjee, **Accountancy-I**, Tata McGraw Hill.
10. Arulanandam and Ramana, **Advanced Accountancy**, Himalaya Publishers.
11. S.N.Maheshwari&V.L.Maheswari, **Advanced Accountancy-I**, Vikas Publishers.
12. Prof E Chandraiah, **Financial Accounting**, Seven Hills International Publishers.

SB.Comgested Co-Curricular Activities:

- Quiz Programs.
- Problem Solving Exercises.
- Co-operative learning.
- Seminar.
- Group Discussions on problems relating to topics covered by syllabus.
- Reports on Proforma invoice and account sales.
- Visit a consignment and joint venture firms(Individual and Group).
- Collection of proforma of bills and promissory notes.
- Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION

SEMESTER: II

GENERAL

Course 2A: Financial Accounting

Time: 3Hrs. Max. Marks: 75

SECTION-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Depletion Method of Depreciation
2. General Reserve
3. Drawer
4. Normal Loss
5. Vendor
6. Bad debts
7. Del-credere commission
8. Consignor

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Depreciation. What are the causes for Depreciation?

(OR)

b) A company whose accounting year is the calendar year purchased on 1.1.2018 a machine for Rs.40,000. It purchased further machinery on 1st October 2018 for Rs. 20,000 and on 1st July for Rs. 10,000. On 1.7.2020, 1/4th of the machinery installed on 1.1.2018 became obsolete and was sold for Rs. 6,800. Show how the machinery account would appear in the books of the company for all the 3 years under diminishing balance method. Depreciation is to be provided at 10% p.a.

10. a) Define Provision and Reserve with examples and difference between provision and reserve.

(OR)

b) What are the provisions? How are they created? Give accounting treatment in case of provision for doubtful debts.

11. a) B owes C a sum of Rs 6,000. On 1st April, 2011 he gives a promissory note for the amount for 3 months to C who gets it discounted with his bankers for Rs 5,760. On the due date the bill is dishonoured, the bank paying Rs 15 as noting charges. B then pays Rs 2,000 in cash and accepts a bill of exchange drawn on him for the balance together with Rs 100 as interest. This bill of exchange is for 2 months and on the due date the bill is again dishonoured, C paying Rs 15 for noting charges draft the journal entries to be passed in C's books.

(OR)

b) What is meant by renewal of a bill of exchange? Distinguish between Promissory Note and Bills of Exchange.

12. a) Define consignment account. Briefly explain the features and objectives of consignment accounts.

(OR)

b) Raja Mills Ltd. of Ahmedabad sent 100 pieces shirting to Fancy Stores, Delhi, on consignment basis. The consignees are entitled to receive 5 per cent commission plus expenses. The cost to Raja Mills Ltd. is Rs 600 per piece.
Fancy Stores, Delhi, pay the following expenses: Railway Freight, etc. Rs 1,000 Godown Rent and Insurance Rs 1,500 Raja Mills Ltd., draw on the consignees a draft for Rs 30,000 which is duly accepted. It is discounted for Rs 28,650. Later Fancy Stores, Delhi, report that the entire consignment has been sold for Rs 78,000. Show journal entries and the important ledger accounts in the books of the consignor.

13 a) A and B were partners in a joint venture sharing profits and losses in the proportion of four-fifth and one-fifth respectively. A supplies goods to the value of Rs.5,000 and inures expenses amounting to Rs.400. B supplies goods to the value of Rs.4,000 and his expenses amounting to Rs.300. B sells goods on behalf of the joint venture and realizes Rs.12,000. B is entitled to a commission of 5 percent on sales. B settles his accounts by bank draft. Give journal entries and necessary ledger accounts in the books of both the parties.

(OR)

b) Difference between consignment and joint venture.

B.Com	Semester: II	Credits: 4
Course: 2B	BUSINESS ECONOMICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Describe the nature of economics in dealing with the issues of scarcity of resources.
- Analyze supply and demand analysis and its impact on consumer behaviour.
- Evaluate the factors, such as production and costs affecting firms behaviour.
- Recognize market failure and the role of government in dealing with those failures.
- Use economic analysis to evaluate controversial issues and policies.
- Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.

UNIT I:

Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics - Micro and Macro Economics and their Interface.

UNIT II:

Demand Analysis: Meaning and Definition of Demand – Determinants to Demand –Demand Function -Law of Demand – Demand Curve – Exceptions to Law of Demand - Elasticity of Demand – Measurements of Price Elasticity of Demand.

UNIT III:

Production, **Cost and Revenue Analysis**: Concept of Production Function – Law of Variable Proportion - Law of Returns to Scale - Classification of Costs -Break Even Analysis – Advantages.

UNIT IV:

Market Structure: Concept of Market – Classification of Markets -Perfect Competition – Characteristics – Equilibrium Price -Monopoly – Characteristics – Equilibrium Under Monopoly.

UNIT V:

National Income: Meaning – Definition – Measurements of National Income - Concepts of National Income - Components of National Income-Problems in Measuring National Income.

REFERENCES:

1. Business Economics -S.Sankaran, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics - Himalaya Publishing House.
4. Business Economics - Aryasri and Murthy, Tata McGraw Hill.
5. Business Economics -H.L Ahuja, Sultan Chand & Sons
6. Principles of Economics -Mankiw, Cengage Publications
7. Fundamentals of Business Economics -Mithani, Himalaya Publishing House
8. Business Economics -A.V. R. Chary, Kalyani Publishers, Hyderabad.
9. Business Economics -Dr K Srinivasulu, Seven Hills International Publishers.

SB.Comgested Co-Curricular Activities:

- Assignments.
- Student Seminars.
- Quiz , JAM.
- Study Projects.
- Group Discussion.
- Graphs on Demand function and demand curves.
- Learning about markets.
- The oral and written examinations (Scheduled and surprise tests).
- Market Studies.
- Individual and Group project reports.
- Annual talk on union and state budget.
- Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: II
GENERAL
Course 2B: Business Economics

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Micro Economics.
2. Law of Demand.
3. Cost Analysis.
4. Monopoly.
5. National Income.
6. Demand Curve.
7. BEP.
8. Forecasting.

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Business Economics. Explain the nature and scope of Business Economics.

(OR)

b) Distinguish between Micro and Macro economics.

10. a) What is meant by Demand? What are the exceptions to Law of Demand?

(OR)

b) What do you understand by elasticity of demand ? Explain the factors which determine the elasticity of demand.

11. a) Discuss the various concepts of cost curves. Why is long cost curve flatter than the short-run cost curve?

(OR)

b) What are the advantages and limitations of Break Even Analysis?

12. a) Define Market. Briefly explain the classification of markets.

(OR)

b) Write an essay on Monopoly.

13. a) Describe the different concepts and components in National Income.

(OR)

b) Briefly explain problems in measuring National Income.

B.Com	Semester: II	Credits: 4
Course: 2C	BANKING THEORY AND PRACTICE	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the basic concepts of banks and functions of commercial banks.
- Demonstrate an awareness of law and practice in a banking context.
- Engage in critical analysis of the practice of banking law.
- Organize information as it relates to the regulation of banking products and services.
- Critically examine the current scenario of Indian Banking system.
- Formulate the procedure for better service to the customers from various banking innovations.

UNIT I:

Introduction: Meaning & Definition of Bank – Functions of Commercial Banks – Credit Creation with Examples - Kinds of Banks – Central Banking Vs. Commercial Banking.

UNIT II:

Banking Systems: Unit Banking, Branch Banking, Investment Banking - Innovations in Banking – E banking - Online and Offshore Banking, Internet Banking - Anywhere Banking - ATMs – RTGS- NEFT – Mobile Banking.

UNIT III:

Types of Banks: Indigenous Banking - Cooperative Banks, Regional Rural Banks, SIDBI, NABARD - EXIM bank.

UNIT IV:

Banker and Customer: Meaning and Definition of Banker and Customer – Types of Customers – General Relationship and Special Relationship between Banker and Customer - KYC Norms.

UNIT V:

Collecting Banker and Paying Banker: Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course – Statutory Protection to Collecting Banker - Responsibilities of Paying Banker - Payment Gateways.

BOOKS FOR REFERENCE:

1. Banking Theory: Law &Practice : K P M Sundram and V L Varsheney, Sultan Chand &Sons.
2. Banking Theory, Law and Practice : B. Santhanam; Margam Publications.
3. Banking Theory and Practice, Seven Hills International Publishers, Hyderabad.
4. Banking and Financial Systems: Aryasri, Tata McGraw-Hill Education India.
5. Introduction to Banking :VijayaRaghavan,Excel books.
6. Indian Financial System :M.Y.Khan, McGraw Hill Education.
7. Banking Theory and Practice, Jagroop Singh, Kalyani Publishers.

SB.Comgested Co-Curricular Activities:

- Debates & Student Seminars.
- Quiz Programmes.
- Visit to Bank premises.
- Guest Lecture by Banking Official and Prepare a statement on periodical declarations of RBI like SLR, REPO etc.
- Collection, display and Practicing of filling of different forms used in banks.
- Survey on customers satisfaction of Banking services.
- Know about KYC norms and Talk on latest trends in banking industry.
- Online Banking.
- Individual and group project reports and Current Affairs of Banking Sector.
- Examinations (Scheduled and surprise tests) and Any similar activities with imaginative thinking beyond the prescribed syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: II
GENERAL Course-2C
Course 2C: Banking Theory And Practice

Time: 3Hrs. Max. Marks: 75

Section-*A*

Answer any **FIVE** of the following questions. **5X5=25M**

1. Commercial banks
2. Internet Banking
3. Indigenous Banking
4. Banker Vs Customer
5. Payment Gateways
6. EXIM Bank
7. Reserve Bank of India
8. E-Banking

SECTION- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Bank. Briefly explain the functions of Commercial Banks.
(OR)
b) Distinguish between Central banking and Commercial Banking.

10. a) What are the merits and demerits of Unit Banking?
(OR)
b) Briefly explain the innovations in Banking.

11. a) Define NABARD. Explain various functions of NABARD.
(OR)
b) Briefly explain the role and importance of RRBs in Indian Economy.

12. a) Explain the special relationship between Banker and Customer.
(OR)
b) Define Banker and Customer. Explain various types of customers.

13. a) Explain the duties and responsibilities of Collecting Banker.
(OR)
b) Explain the responsibilities of Paying Banker.

B.Com	Semester: III	Credits: 4
Course: 3A	ADVANCED ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the concept of Non-profit organisations and its accounting process.
- Comprehend the concept of single-entry system and preparation of statement of affairs.
- Familiarize with the legal formalities at the time of dissolution of the firm .
- Prepare financial statements for partnership firm on dissolution of the firm.
- Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership.

UNIT I:

Accounting for Non Profit Organizations: Non Profit Entities- Meaning - Features of Non-Profit Entities –Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including problems).

UNIT II:

Single Entry System: Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems).

UNIT III:

Hire Purchase System: Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems).

UNIT IV:

Partnership Accounts-I: Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner(including problems).

UNIT V:

Partnership Accounts-II: Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).

REFERENCES BOOKS:

1. Advanced Accountancy: T S Reddy and A Murthy by Margham Publications.
2. Financial Accounting: SN Maheswari& SK Maheswari by Vikas Publications.
3. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
4. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand &Sons..
5. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas publishers.
6. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP Publications.
7. Accountancy–III: Tulasian, Tata McGraw Hill Co.
8. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
9. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.
10. Advanced Accounting: Prof B Amarnadh, Seven Hills International Publishers.
11. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.

SB.Comgested Co-Curricular Activities:

- Quiz Programs and Problem Solving exercises.
- Co-operative learning.
- Seminar and Visit a single-entry firm, collect data and Creation of Trial Balance of the firm .
- Visit Non-profit organization and collect financial statements.
- Critical analysis of rate of interest on hire purchase schemes.
- Visit a partnership firm and collect partnership deed .
- Debate on Garner v/s Murray rule in India and outside India.
- Group Discussions on problems relating to topics covered by syllabus.
- Examinations (Scheduled and surprise tests) on all units.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: III
GENERAL
Course 3A: Advanced Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Non-profit organizations
2. Statement of Affairs
3. Hire Vendor
4. Partnership Deed
5. Garner Vs Murrey
6. Dissolution of Partnership
7. Accounting Process
8. Double Entry System

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Distinguish between Income and Expenditure and Receipts and Payment Accounts.

(OR)

b) What are the provisions and features of Non-profit organizations?

10. a) Briefly explain advantages and limitations of single entry system.

(OR)

b) Mr. Ramesh, who keeps his books on single entry system, tells you that his capital on 31-12-2019 is Rs.40,500 and on 1st January 2019 was Rs.25,800. He further informs you that he withdraws Rs.3,500 for personal purposes. He invested further capital of Rs.5,000. Besides this, there is no other information. You are required to prepare Statement of Profit and Loss for the year ended on 31-12-2019.

11. a) Malnad Coffee Works Ltd., boB.Comht coffee drying machine costing Rs.6,56,000 from Xavier Ltd on 1st January 2019 on hire purchase basis. Rs. 2,00,000 was paid on signing the contract and the balance in three annual instalments of Rs. 2,00,000 (each) by the end of December every year. Interest was charged at 15% per annum. Life of the machine was expected to be four years. You are required to pass the journal entries and necessary ledger accounts in the books of
(i) Malnad Coffee Works Ltd., and (ii) Xavier Ltd.

(OR)

b) Briefly explain the advantages and limitations of Instalment System.

12. a) Briefly explain the classification of Partners.

(OR)

b) A and B are partners in a firm sharing profits and losses in the ratio of 3:2. A new partner C is admitted. A surrenders 1/5th of his share and B surrenders 2/5th of his share and B surrenders 2/5th of his share in favour of C. For the purpose of C's admission, goodwill of the firm is valued at Rs.75,000 and C brings in his share of goodwill in cash which is retained in the firm's books. Journalise the above transactions.

13. a) the Balance sheet of X, Y and Z as at 31 st March, 2018 was:

Liabilities		**Amount Rs.**	**Assets**	**Amount Rs.**
Bills Payable		2000	Cash at Bank	5,800
Employees' Provident Fund		5000	Bills Receivable	800
Workmen Compensation Reserve		6000	Stock	9,000
General Reserve		6000	Sundry Debtors	16,000
Loans		7100	Furniture	2,000
Capital A/cs:			Plant and Machinery	6,500
X	22,750		Building	30,000
Y	15,250		Advertising Suspense	6,000
Z	12,000	50,000		
		76,100		**76,100**

The profit-sharing ratio was 3:2:1. *Z* died on 31st July, 2018. The Partnership Deed provides that:
(i) Goodwill is to be calculated on the basis of three years' purchase of the five years' average profit. The profits were: 2017-18: Rs. 24,000; 2016-17: Rs. 16,000; 2015-16: Rs. 20,000 and 2014-15: Rs. 10,000 and 2013-14: Rs. 5,000.
(ii) The deceased partner to be given share of profits till the date of death on the basis of profits for the previous year.
(iii) The Assets have been revalued as: Stock Rs.10,000; Debtors Rs. 15,000; Furniture Rs.1,500; Plant and Machinery Rs. 5,000; Building Rs.35,000. A Bill Receivable for Rs. 600 was found worthless.
(iv) A Sum of Rs. 12,233 was paid immediately to *Z*'s Executors and the balance to be paid in two equal annual installments together with interest @ 10% p.a. on the amount outstanding.Give Journal entries and show the *Z*'s Executors' Account till it is finally settled.

(OR)

b) How would you distinguish between dissolution of partnership and dissolution of Firm?

B.Com	Semester: III	Credits: 4
Course: 3B	BUSINESS STATISTICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the importance of Statistics in real life.
- Formulate complete, concise, and correct mathematical proofs.
- Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.
- Build and assess data-based models.
- Learn and apply the statistical tools in day life.
- Create quantitative models to solve real world problems in appropriate contexts.

UNIT I:

Introduction to Statistics: Definition – Importance, Characteristics and Limitations of Statistics - Classification and Tabulation – Frequency Distribution Table -Diagrams and Graphic Presentation of Data (including problems)

UNIT II:

Measures of Central Tendency: Types of Averages – Qualities of Good Average - Mean, Median, Mode, and Median based Averages-Geometric Mean – Harmonic Mean(including problems)

UNIT III:

Measures of Dispersion: Meaning and Properties of Dispersion – Absolute and Relative Measures - Types of Dispersion-Range - Quartile Deviation (Semi – Inter Quartile Range) -Mean Deviation - Standard Deviation - Coefficient of Variation. (including problems)

UNIT IV:

Skewness and Kurtosis: Measures of Skewness: Absolute and Relative Measures- Co-efficient of Skewness: Karl Pearson's, Bowley's and Kelly's - Kurtosis: Meso kurtosis, Platy kurtosis and Leptokurtosis (including problems)

UNIT V:

Measures of Relation: Meaning and use of Correlation – Types of Correlation - Karlpearson's Correlation Coefficient - Probable Error-Spearman's Rank-Correlation (including problems)

TEXT BOOKS:

1. Business Statistics, Reddy C.R., Deep Publications.
2. Statistical Methods: Gupta S.P.Sultan Chand & Sons.
3. Statistics-Problems and Solutions: Kapoor V.K, Sultan Chand &Sons.
4. Fundamentals of Statistics: Elhance. D.N
5. Business Statistics, Dr.P.R.Vittal, Margham Publications
6. Business Statistics, LS Agarwal, Kalyani Publications.
7. Statistics: Dr V Murali Krishna, Seven Hills International Publishers.
8. Fundamentals of Statistics: Gupta S.C. Sultan Chand &Sons.
9. Statistics-Theory, Methods and Applications: Sancheti, D.C. & Kapoor V.K.
10. Business Statistics: J.K. Sharma, Vikas Publishers.
11. Business Statistics: Bharat Jhunjhunwala, S Chand Publishers.
12. Business Statistics: S.L.Aggarval, S.L.Bhardwaj and K.Raghuveer, Kalyani Publishers.

SB.Comgested Co-Curricular Activities :

- Student Seminars, Quiz. and Problem Solving Exercises.
- Observe Live Population Clocks – India and world.
- Collection of statistical data of village/town, District, State, Nation.
- Participate in Crop Cutting Experiments at villages.
- Percentiles in CET exams.
- Practice Statistical Functions in MS Excel and Draw diagrams and Graphs in MS Excel.
- Use statistical tools in real life like class/college results, local production etc.
- Prepare questionnaire and schedule.
- Application of averages in everyday life and Examinations (Scheduled and surprise tests).
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION

SEMESTER: III

GENERAL

Course 3B: Business Statistics

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Classification of Data
2. Harmonic Mean
3. Range
4. Skewness
5. Correlation
6. Probable Error
7. Coefficient of Variation
8. Frequency Distribution

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Highlight the role and importance of statistics in business decision making in detail.

(OR)

b) Briefly explain the nature and scope of Business Statistics.

10. a) What are the advantages and limitations of measures of central tendency?

(OR)

b) Calculate Mean and Variance of the following Data.

Size	14	16	18	20	22	24	26
Frequency	12	13	14	15	13	12	16

11. a) Calculate quartile deviation and its coefficient from the following data :

C.I	0-10	10-20	20-30	30-40	40-50
F	5	7	10	5	8

(OR)

b) Define standard deviation. Briefly explain advantages and limitations of standard deviation.

12.a) Given the following information, find the number of items (n) where rxy = 0.8, x$\sum$y = 2.5,σxy =60, $\sum$2 = 90, where x and y are the deviations from the respective means.

(OR)

b) Briefly explain the measures of skewness.

13. a) Calculate the co-efficient of correlation from the following data:

X	12	9	8	10	11	13	07
Y	14	8	6	9	11	12	3

ThroB.Comh Karl Pearson's method.

(OR)

b) Explain various types of correlation.

B.Com	Semester: III	Credits: 4
Course: 3C	MARKETING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Develop an idea about marketing and marketing environment.
- Understand the consumer behaviour and market segmentation process.
- Comprehend the product life cycle and product line decisions.
- Know the process of packaging and labeling to attract the customers.
- Formulate new marketing strategies for a specific new product.
- Develop new product line and sales promotion techniques for a given product.
- Design and develop new advertisements to given products.

UNITI:

Introduction: Concepts of Marketing: Need, Wants and Demand - Marketing Concepts – Marketing Mix - 4 P's of Marketing – Marketing Environment.

UNIT II:

Consumer Behaviour and Market Segmentation: Buying Decision Process – Stages – Buying Behaviour – Market Segmentation –Bases of Segmentation - Selecting Segments – Advantages of Segmentation.

UNIT III:

Product Management: Product Classification – Levels of Product - Product Life Cycle - New Products, Product Mix and Product Line Decisions - Design, Branding, Packaging and Labelling.

UNIT IV:

Pricing Decision: Factors Influencing Price – Determination of Price - Pricing Strategies: Skimming and Penetration Pricing.

UNIT V:

Promotion and Distribution: Promotion Mix - Advertising - Sales promotion - Publicity – Public Relations - Personal Selling and Direct Marketing - Distribution Channels
– Online Marketing

REFERENCE BOOKS:

1. Philip Kotler, Marketing Management, Prentice Hall of India.
2. Philip Kotler & Gary Armstrong, Principles of Marketing, Pearson Prentice Hall.
3. Stanton J. William & Charles Futrel, Fundamentals of Marketing, McGraw Hill.
4. V.S. Ramaswamy S. Nama Kumari, Marketing Management – Planning, McMillan.
5. The Consumer Protection Act 1986 and Consumer Protection Act 2019.
6. Dhruv Grewal and Michael Levy, Marketing, McGraw Hill Education.
7. Dr L Natarajan, Financial Markets, Margham Publications.
8. Dr M Venkataramanaiah, Marketing, Seven Hill International Publishers.
9. C N Sonanki, Marketing, Kalyani Publications.

SB.Comgested Co-Curricular Activities:

- Quiz programs and Seminars .
- Practice of Terminology of Marketing.
- Guest lectures on various topics by marketing agents.
- Observing consumer behaviour on field trips to local markets.
- Visit a manufacturing industry/firm for product manufacturing process.
- Showing Graphs on Pricing decisions.
- Analyse the advertisements.
- Product demonstration by the student.
- Conducting the survey on middle man in marketing process and Making a advertisement.
- Examinations (Scheduled and surprise tests) .

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: III
GENERAL
Course 3C: Marketing

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Marketing Management
2. Consumer Behaviour
3. Product Mix
4. Penetration Pricing
5. Personal Selling
6. Branding
7. Advertising
8. Labelling

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Critically evaluate the trends in marketing practices in the present global environment.

(OR)

b) Explain the Marketing Environment factors for the Cosmetic Industry.

10. a) What are the advantages and limitations of market segmentation?

(OR)

b) What factors influencing consumer behaviour?

11. a) Explain the stages of Product Life Cycle and strategies to adapt at every stage.

(OR)

b) Explain various methods of pricing of a new product. .

12 a) What factors influencing price?

(OR)

b) Briefly explain the pricing strategies.

13. a) What are the Problems faced by E-Business People?

(OR)

b) What do you mean by On –Line Marketing? And also discuss the advantages of On – Line Marketing.

B.Com	Semester: IV	Credits: 4
Course: 4A	CORPORATE ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the Accounting treatment of Share Capital and aware of process of book building.
- Demonstrate the procedure for issue of bonus shares and buyback of shares.
- Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments.
- Participate in the preparation of consolidated accounts for a corporate group.
- Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions.
- Communicate accounting policy choices with reference to relevant laws and accounting standards.

UNIT I:

Accounting for Share Capital: Kinds of Shares – Types of Preference Shares – Issue of Shares at Par, Discount and Premium - Forfeiture and Reissue of Shares (including problems).

UNIT II:

Issue and Redemption of Debentures and Issue of Bonus Shares: Accounting Treatment for Debentures Issued and Repayable at Par, Discount and Premium -Issue of Bonus Shares - Buyback of Shares - (including problems).

UNIT III:

Valuation of Goodwill: Need and Methods - Average Profit Method, Super Profits Method – Capitalization Method and Annuity Method (Including problems).

UNIT IV:

Valuation Shares: Need for Valuation - Methods of Valuation - Net Assets Method, Yield Basis Method, Fair Value Method (including problems).

UNIT V:

Company Final Accounts: Provisions of the Companies Act, 2013 - Preparation of Final Accounts – Adjustments Relating to Preparation of Final Accounts – Profit and Loss Account and Balance Sheet – (including problems with simple adjustments).

REFERENCE BOOKS:

1. Corporate Accounting – T.S Reddy and Murthy, MarghamPublications, Chennai.
2. Advanced Accounts: M C Shukla, T S Grewal and S C Gupta, S Chand Publications
3. Corporate Accounting – Haneef & Mukherji, Tata McGraw Hill Publications.
4. Corporate Accounting – RL Gupta & Radha Swami,Sultan Chand & sons
5. Corporate Accounting – P.C. Tulsian, S.Chand Publishers
6. Advanced Accountancy: Jain and Narang,,Kalyani Publishers
7. Advanced Accountancy: R.L. Gupta and M.Radhaswamy, S Chand.
8. Advanced Accountancy :Chakraborthy, Vikas Publishers
9. Corporate Accounting: S.N. Maheswari, S.K. Maheswari, Vikas Publishing House.
10. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand & Company
11. Corporate Accounting: Umamaheswara Rao, Kalyani Publishers
12. Corporate Accounting: Dr ChandaSrinivas, SevenHills International Publishers,
13. Advanced Accountancy: Arulanandam& Raman, Himalaya Publishing House.

SB.Comgested Co-Curricular Activities:

- Assignments and Problem Solving Exercises.
- Collect and fill the share application form of a limited Company.
- Collect Prospectus of a company and identify its salient features.
- Collect annual report of a Company and List out its assets and Liabilities.
- Collect the annual reports of company and calculate the value of goodwill under different methods.
- Power point presentations on types of shares and share capital.
- Group Discussions on problems relating to topics covered by syllabus.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
GENERAL
Course 4A: Corporate Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Forfeiture of Shares
2. Buyback of shares
3. Annuity Method of Goodwill
4. Fair value method
5. Companies Act, 2013
6. Equity Share Capital
7. Dividend
8. Goodwill

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) X Ltd. Forfeited 100 equity shares of Rs. 10 each held by Rooldu Ram on 15th December, 2015 for non-payment of First Call of Rs. 2 per share and the final call of Rs. 3 per share. These shares were re-issued to Mohan on 25th December 2015 at a discount of Rs. 3.50 per share. Pass journal entries.

(OR)

b) What are the advantages of Equity Share Capital and Preference Share Capital?

10. a) Explain the major sources where from the debentures can be redeemed.

(OR)

b) What is the purpose of issue of bonus shares? What are the conditions which have to be fulfilled while making such an issue?

11. a) RG and MK are the partners in the firm. Their capitals are 3, 00,000 and 2,00,000. During the year ended 31st March, 2010 the firm earned a profit of 1,50,000. Assuming that the normal rate of return is 20%. Calculate the value of goodwill of the firm:
    1. By capitalization method
    2. By super profit method if the goodwill is valued at 2 years purchase of super profit.

(OR)

b) Define goodwill. When may the need for evaluating goodwill arise in the case of a joint stock company?

12. a) Explain need for valuation and methods of valuation.

(OR)

b) From the following Balance Sheet of Sweetex Ltd. you are asked to-ascertain the value of each Equity Share of the company:

Liabilities	**Amount Rs.**		**Assets**	**Amount Rs.**
20,000 Equity Shares Rs. 10 each, fully paid		20,000	Good Will	30,000
1000, 6%Preference Shares of Rs.100 each, fully paid		1,00,000	Land And Building	1,00,000
Reserves	60,000		Plant and Machinery	1,20,000
Sundry Creditors	40,000		Investment(At Cost)	60,000
Provision for Taxation	20,000		Stock	50,000
Other Liabilities	10,000		Debtors	40,000
			Cash at Bank	24,000
			Preliminary Expenses	6,000
	4,30,000			**4,30,000**

For the purpose of valuing the shares of the company, the assets were revalued as: Goodwill Rs. 50,000; Land and Building at cost plus 50%, Plant and Machinery Rs. 1, 00,000; Investments at book values; Stock Rs. 80,000 and Debtors at book value, less 10%.

13.a) A limited company has an authorized capital of Rs.1,000,000 divided into 60,000 equity shares of Rs.10 each and 4,000, 10% preference shares of Rs.100 each out of which 50,000 equity share and 3,000 preference share were issued and fully paid up. The profit for the year 2019 being the first year of operation amounted to Rs.1,80,000 after income tax. The directors decided to declare a dividend of 22% on the equity share capital after.

i. Statutory minimum requirement transfer to general reserve

ii. Provision of dividend on preference shares.

Prepare profit and loss appropriation account and show liabilities side of the balance sheet.

(OR)

b) What are the salient features and provisions of Companies Act, 2013.

B.Com	Semester: IV	Credits: 4
Course: 4B	COST AND MANAGEMENT ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand various costing methods and management techniques.
- Apply Cost and Management accounting methods for both manufacturing and service industry.
- Prepare cost sheet, quotations, and tenders to organization for different works.
- Analyze cost-volume-profit techniques to determine optimal managerial decisions.
- Compare and contrast the financial statements of firms and interpret the results.
- Prepare analysis of various special decisions, using relevant management techniques.

UNIT I:

Introduction: Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Management Accounting: Features – Objectives – Functions –
Elements of Cost - Preparation of Cost Sheet (including problems)

UNIT II:

Material and Labour Cost: Techniques of Inventory Control – Valuation of Material Issues: FIFO - LIFO - Simple and Weighted Average Methods. Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages- Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowan Methods and Taylor Methods only(including problems)

UNIT III:

Job Costing and Batch Costing: Definition and Features of Job Costing – Economic Batch Quantity (EBQ) – Preparation of Job Cost Sheet – Problems on Job Cost Sheet and Batch Costing(including problems)

UNIT IV:

Financial Statement Analysis and Interpretation:Financial Statements - Features, Limitations. Need, Meaning, Objectives, and Process of Financial Statement Analysis- Comparative Analysis – Common Size Analysis and Trend Analysis (including problems)

UNIT V:

Marginal Costing: Meaning and Features of Marginal Costing – Contribution –Profit Volume Ratio- Break Even Point – Margin of Safety – Estimation of Profit and Estimation of Sales(including problems).

REFERENCES BOOKS:

1. S.P. Jain and K.L. Narang – Advanced Cost Accounting, Kalyani Publishers.
2. M.N. Arora – A test book of Cost Accounting, Vikas Publishing House Pvt. Ltd.
3. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons.
4. Nigam & Sharma – Cost Accounting Principles and Applications, S.Chand& Sons.
5. S.N. Maheswari– Principles of Management Accounting, Sultan Chand & Sons.
6. I.M.Pandey – Management Accounting, Vikas Publishing House Pvt. Ltd.
7. Sharma & Shashi Gupta – Management Accounting, Kalyani Publishers.
8. Murthy & Guruswamy – Management Accounting, Tata McGraw Hill, New Delhi.
9. S.P. Gupta – Management Accounting, S. Chand Publishing, New Delhi.
10. Umamaheswara Rao and Ranganath, Cost Accounting, Kalyani Publishers.
11. Dr V Murali Krishna – Cost Accounting, Seven Hills International Publishers.

SB.Comgested Co-Curricular Activities:

- Debate on methods of payments of wages.
- Seminars and Problem Solving Exercises .
- Seminar on need and importance of financial statement analysis.
- Graphs showing the breakeven point analysis.
- Identification of elements of cost in services sector by Visiting any service firm
- Cost estimation for the making of a proposed product.
- Listing of industries located in your area and methods of costing adopted by them.
- Collection of financial statements of any two organization for two years and prepare a common Size Statements. Collection of cost sheet and pro-forma of quotation.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
GENERAL
Course 4B: Cost And Management Accounting

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Elements of Cost
2. Time Rate Method
3. EBQ
4. Trend Analysis
5. Profit Volume Ratio
6. Job Costing
7. Cost Sheet
8. Inventory Control

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) Define Cost Accounting. Briefly explain the objectives and functions of Cost Accounting.

(OR)

b) Distinguish between Cost Accounting and Management Accounting

10. a) From the following details write Store Ledger under simple average method:

2006			
DEC	1	Opening Balance	100Kg @ Rs. 5.00
"	5	Received	50Kg @ Rs. 5.20
"	8	Issued	120Kg
"	10	Issued	10Kg
"	15	Received	80Kg @ Rs. 5.40
"	18	Issued	50Kg
"	20	Received	100Kg @ Rs. 5.60
"	25	Issued	40Kg
"	29	Issued	60Kg

The stock verifier found a shortage of 10 kg. on 16.12.06 and another shortage of 10 kg on 26.12.06.

(OR)

b) Define 'Labour Turnover'. How is it measured? Explain.

11. a) Distinguish between Job costing and batch costing.

(OR)

b) Annual demand for a component is 30,000 units. Cost of set-up per batch is Rs.600. Inventory carrying cost per unit per annum is Rs.1. (i) Calculate the total cost assuming batch size of 4,000 units, 5,000 units, 6,000 units, 7,000 units, 8,000 units, 9,000 units and 10,000 units. Also find the economic batch quantity. (ii) Using mathematical formula calculate economic batch quantity.

12. a) Define financial statement analysis. Explain the objectives and process of financial statement analysis.

(OR)

b) Briefly explain comparative analysis and common-size analysis.

13. a) Define Marginal Costing. Explain the features and importance of marginal costing.

(OR)

b) From the following data, you are required to calculate:

(i) P/V ratio

(ii) Break-even sales with the help of P/V ratio.

(iii) Sales required to earn a profit of Rs. 4,50,000

Fixed Expenses = Rs. 90,000
Variable Cost per unit:
Direct Material = Rs. 5
Direct Labour = Rs. 2
Direct Overheads = 100% of Direct Labour
Selling Price per unit = Rs. 12.

B.Com	Semester: IV	Credits: 4
Course: 4C	INCOME TAX	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.
- Understand the provisions and compute income tax for various sources.
- Grasp amendments made from time to time in Finance Act.
- Compute total income and define tax complicacies and structure.
- Prepare and File IT returns of individual at his own.

UNIT I:

Introduction: Income Tax Act-1961 - Basic Concepts: Income, Person, Assessee - Assessment Year, Previous Year, Rates of Tax, Agricultural Income,ResidentialStatusof Individual -Incidence of Tax – Incomes Exempt from Tax (theory only).

UNIT II:

Income from Salaries: Basis of Charge, Tax Treatment of Different Types of Salaries Allowances, Perquisites, Profits in Lieu of Salary, Deductions from Salary Income, Computation of Salary Income (including problems).

UNIT III:

Income from House Property and Profits and Gains from Business: Annual Value, Let-out/Self Occupied/Deemed to be Let-out house -Deductions from Annual Value - Computation of Income from House Property, Definition of Business and Profession – Procedure for Computation of Income from Business – Revenue and Capital Nature of Incomes and Expenses – Allowable Expenses – Expenses Expressly Disallowed – Computation (including problems).

UNIT IV:

Income from Capital Gains - Income from Other Sources: Meaning of Capital Asset – Types – Procedure for Computation of Long-term and Short-term Capital Gains/Losses
Meaning of Other Sources - General Incomes – Specific Incomes – Computation (including problems).

UNIT V: Computation of Total Income of an Individual: Deductions under Section 80 - Computation of Total Income (Simple problems).

REFERENCE BOOKS:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

SB.Comgested Co-Curricular Activities:

- Seminar on different topics of Income tax and Quiz programs, also Problem Solving Exercises.
- Debate on Tax Evasion and Avoidance.
- Practice of provisions of Taxation.
- Talk on Finance Bill at the time of Union Budget.
- Guest lecture by Chartered Accountant.
- Presentation of tax rates and Practice of filing IT Returns online.
- Group Discussions on problems relating to topics covered by syllabus.
- Examinations (Scheduled and surprise tests)

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
GENERAL
Course 4C: Income Tax

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Assessed
2. Agriculture Income
3. Perquisites
4. Gratuity
5. Self-occupied Property
6. Capital Asset
7. Interest on Securities
8. Total Income

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) What are the different categories of assesses according to their residential status? How is this status determined?

(OR)

b) Enumerate any ten items which are exempt from charge of Income-tax U/S 10.

10. a) Balu is employed by P Ltd in Pune. During the previous year, he gets the following emoluments: Basic salary: Rs. 1,86,000; dearness allowance: Rs. 12,300 (forming part of salary); city compensatory allowance: Rs. 3,100; children's education allowance: Rs. 2,340 (for 3 children); Bonus Rs.15,000; house rent allowance: Rs. 16,200 (rent paid: Rs. 20,000). Employer's contribution towards recognized provident fund Rs.20,000; Balu's contribution towards recognized provident fund Rs.40000; Income of Balu from other sources in India 80,000; Find out the taxable income and tax liability of Balu for the assessment year 2016-2017.

(OR)

b) Discuss various deductions available under the head salary.

11. a) What are the incomes chargeable under the head "Profits and Gains of Business or Profession?

(OR)

b) A owns two houses, I & II. House I is let-out throB.Comhout the previous year. House II is self-occupied for nine months and let-out for three months on a monthly rent of Rs 5,000. Determine Taxable income, given the following details.

	House I	House I
Municipal Value	40000	50000
Fair Rent	50000	48000
Rent Received	48000	15000
Municipal Taxes paid	4000	5000
Insurance Premium (not yet paid)	2000	2500
Ground Rent	1000	1500
Maintenance Charges	3000	3500
Electricity Bill	5000	6000

12. a) Discuss the provisions of the IT Act, 1961 regarding: (i) Conversion of Capital Assets to Stock in Trade; (ii) Computation of Capital Gains in case of depreciable assets.

(OR)

b) Briefly explain general income and special incomes from other sources.

13. a) Briefly explain the deductions U/S 80.

(OR)

b) What is the procedure for computation of total income with examples?

B.Com	Semester: IV	Credits: 4
Course: 4D	BUSINESS LAW	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the legal environment of business and laws of business.
- Highlight the security aspects in the present cyber-crime scenario.
- Apply basic legal knowledge to business transactions.
- Understand the various provisions of Company Law.
- Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade.

UNIT I:

Contract: Meaning and Definition of Contract - Essential Elements of Valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872

UNIT II:

Offer, Acceptance and Consideration: Definition of Valid Offer, Acceptance and Consideration - Essential Elements of a Valid Offer, Acceptance and Consideration.

UNIT III:

Capacity of the Parties and Contingent Contract:

Rules Regarding to Minors Contracts - Rules Relating to Contingent Contracts - Different Modes of Discharge of Contracts - Rules Relating to Remedies to Breach of Contract.

UNIT IV:

Sale of Goods Act 1930 and Consumer Protection Act 2019:

Contract of Sale - Sale and Agreement to Sell - Implied Conditions and Warranties - Rights of Unpaid Vendor- Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Mechanism.

UNIT V:

Cyber Law: Overview and Need for Cyber Law - Contract Procedures - Digital Signature-Safety Mechanisms.

REFERENCES BOOKS:

1. J. Jaysankar, Business Laws, Margham Publication. Chennai.
2. ND Kapoor, Business Laws, S Chand Publications.
3. Balachandram V, Business law, Tata McGraw Hill.
4. Tulsian, Business Law, Tata McGraw Hill.
5. Pillai Bhagavathi, Business Law,SChand Publications.
6. Business Law, Seven Hills Publishers, Hyderabad.
7. K C Garg, Business Law, Kalyani Publishers.

SB.Comgested Co-Curricular Activities:

- Seminar on Basics of Indian Contract Act,1872.
- Quiz programs.
- Co-operative learning.
- Seminar on Cyber Law.
- Group Discussions.
- Debate on Offer, Agreement, and Contract.
- Creation of Contract by abiding rules of Indian Contract Act,1872.
- Making a sale by abiding rules of Sale of Goods Act,1930.
- Guest lecture by a Lawyer/Police officer.
- Celebrating consumers day by creating awareness among the students.
- Examinations (Scheduled and surprise tests) .
- Any similar activities with imaginative thinking beyond the prescribed syllabus

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
GENERAL
Course 4D: Business Law

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Agreement
2. Acceptance
3. Minor
4. Unpaid Vendor
5. Digital Signature
6. Breach of Contract
7. Unsound Mind
8. Consumer

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) "All contracts are agreements but all agreements are not contract"…Explain.

(OR)

b) What are the salient features and classification of contracts under Indian Contact Act, 1872.

10. a) What are the essentials of consideration?

(OR)

b) What is offer and Invitation to offer?

11. a) Briefly explain various modes of discharge of contract.

(OR)

b) Explain the rules relating to contingent contracts.

.

12. a) What are the salient features and contents of Sale of Goods Act, 1930?

(OR)

b) Explain the rights of a consumer under Consumer Protection Act, 2019.

13. a) Explain an overview and need for Cyber Law.

(OR)

b) What is contract procedures and safety mechanism for Cyber Laws.

B.Com	Semester: IV	Credits: 4
Course: 4E	AUDITING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understanding the meaning and necessity of audit in modern era.
- Comprehend the role of auditor in avoiding the corporate frauds.
- Identify the steps involved in performing audit process.
- Determine the appropriate audit report for a given audit situation.
- Apply auditing practices to different types of business entities.
- Plan an audit by considering concepts of evidence, risk and materiality

UNIT I:

Introduction: Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing - Accounting vs Auditing – Role of Auditor in Checking Corporate Frauds.

UNIT II:

Types of Audit: Based on Ownership, Time and Objective - Independent, Financial, Internal, Cost,Tax, Government, Secretarial Audits

UNIT III:

Planning of Audit: Steps to be taken at the Commencement of a New Audit – Audit Programme - Audit Note Book– Audit Working Courses - Audit Evidence - Internal Check, Internal Audit and Internal Control.

UNIT IV:

Vouching and Investigation: Definition and Importance of Vouching – Objectives of Vouching - Vouching of Cash and Trading Transactions – Investigation - Auditing vs. Investigation

UNIT V:

Company Audit and Auditors Report: Auditor's Qualifications – Appointment andReappointment – Rights, Duties, Liabilities and Disqualifications - Audit Report: Contents –Preparation - Relevant Provisions of Companies Act, 2013.

REFERENCESBOOKS:

1. S.Vengadamani, “Practical Auditing”, Margham Publications, Chennai.
2. Ghatalia, “Principles of Auditing”, Allied Publishers Pvt. Ltd., New Delhi.
3. Pradeesh Kumar, BaldevSachdeva&Jagwant Singh,

“Auditing Theory and Practice,Kalyani Publications
4. N.D. Kapoor, “Auditing”, S Chand, New Delhi.
5. R.G. Saxena, “Principles and Practice of Auditing”, Himalaya Publishing House New Delhi
6. JagadeshPrakesh, “Principles and Practices of Auditing”, Kalyani Publications
7. Kamal Gupta and Ashok Gupta, “Fundamentals of Auditing”, Tata McGraw Hill
8. B.N. Tondan, “Practical Auditing”, S.Chand, New Delhi.
9. K J Vijaya Lakshmi & A S Roopa, Auditing, Seven Hills International Publishers, Hyderabad

SB.Comgested Co-Curricular Activities:

- Seminars.
- Visit the audit firms.
- Visit an audit firm, write about the procedure followed by them in Auditing the books of accounts of a firm.
- Guest lecture by an auditor.
- Collect the information about types of audit conducted in any one Organization.
- Collection of audit reports and Group Discussions.
- Draft an audit program.

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
GENERAL
Course 4E: Auditing

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any **FIVE** of the following questions. **5X5=25M**

1. Book Keeping Vs Auditing
2. Government Audit
3. Audit Note Book
4. Investigation
5. Audit Report
6. Internal Check
7. Cost Audit
8. Vouching

Section- B

Answer **FIVE** questions. **5X10=50M**

9. a) What are the objectives and importance of auditing?

(OR)

b) Explain the role and responsibilities of auditor in checking corporate frauds.

10. a) Briefly explain various types of audit.

(OR)

b) Explain the merits and demerits of Financial Audit and Internal Audit.

11. a) What are the steps to be taken at the commencement of a New Audit?

(OR)

b) Define Internal Control. Why to have internal control? Explain the elements of a good system of Internal Control.

12. a) What are the basic objectives and functions of Vouching?

(OR)

b) Distinguish between Auditing and Investigation.

13. a) Briefly explain the rights and duties of Auditors.

(OR)

b) State the provisions of the Companies Act, 2013 regarding qualification, appointment and removal of auditors.

B.Com	Semester: IV	Credits: 4
Course: 4F	GOODS AND SERVICES TAXES	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the basic principles underlying the Indirect Taxation Statutes.
- Examine the method of tax credit. Input and Output Tax credit and Cross Utilisation of Input Tax Credit.
- Identify and analyze the procedural aspects under different applicable statutes related to GST.
- Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.
- Develop various GST Returns and reports for business transactions in Tally.

UNIT I: Introduction: Overview of GST - Concepts –Taxes Subsumed under GST – Components of GST- GST Council- Advantages of GST-GST Registration.

UNIT II: GST Principles –Vijay Kelkar Sha Committee Recommendations - Comprehensive Structure of GST Model in India: Single, Dual GST – GST Rates - Taxes Exempted from GST- Taxes and Duties outside the purview of GST- Taxation of Services

UNIT III: Tax Invoice- Bill of Supply-Transactions Covered under GST-Composition Scheme- Reverse Charge Mechanism- Composite Supply -Mixed Supply.

UNIT IV: Time of Supply of Goods & Services: Value of Supply - Input Tax Credit - Distribution of Credit -Matching of Input Tax Credit - Availability of Credit in Special Circumstances- Cross utilization of ITC between the Central GST and the State GST.

UNIT V: GST Returns: Regular Monthly Filing Returns-Composition Quarterly Filing Returns-GSTR-1, GSTR-2, GSTR 2A, GSTR-3, GSTR 3B -Annual Returns GSTR-9, GSTR 9A, GSTR 9B& GSTR 9C - Records to be Maintained under GST.

REFERENCES BOOKS:

1. T. S. Reddy and Dr. Y. Hari Prasad Reddy, Business Taxation (Goods and Services Taxes),Margham Publications.
2. Taxmann's Basics of GST.
3. Taxmann's GST: A practical Approach.
4. Theory & Practice of GST, Srivathsala, Himalaya Publishing House.
5. Goods and Services Tax in India - Notifications on different dates. GST Bill 2012.
6. Background Material on Model GST Law, Sahitya Bhawan Publications.
7. The Central Goods and Services Tax Act, 2017, No. 12 of 2017 Published by Authority.
8. Ministry of Law and Justice, New Delhi, the 12thApril, 2017.
9. Theory & Practice of GST: Dr. Ravi M.N, BPB Publications.

SB.Comgested Co-Curricular Activities :

- Seminars.
- Show the flow chart of GST Suvidha Provider (GST).
- Practice of Terminology of Goods and Service Tax.
- Prepare chart showing rates of GST.
- Follow GST Council meeting updates regularly.
- Creation of GST Vouchers and Tax invoices.
- Visit a Tax firm (Individual and Group).
- Guest lecture by GST official.
- Prepare Tax invoice under the GST Act.
- Practice on how to file a Returns.
- Debate on Single GS, Dual GST.
- Group Discussions on Goods and Services outside the Purview of GST

MODEL QUESTION COURSE

B.Com DEGREE EXAMINATION
SEMESTER: IV
GENERAL
Course 4F: Goods And Services Taxes

Time: 3Hrs. Max. Marks: 75

Section-A

Answer any FIVE of the following: **5X5=25M**

1. GST council
2. GST rates
3. Tax invoice
4. State GST
5. GSTR 9 A
6. Input Tax Credit
7. Scope of GST
8. GST return

Section- B

Answer **FIVE** questions. **5x10=50M**

9. a) Explain overview of GST.

(OR)

b) What are the advantages and limitations of GST.

10. a) Elaborate the comprehensive structure of GST Model in India.

(OR)

b) Briefly explain taxes exempted from GST and Duties outside the purview of GST.

11. a) Explain various steps involved in the process of registration for GST? List various types of returns used in GST.

(OR)

b) Discuss in detail the GST Valuation Rules with suitable example.

12. a) What is input tax credit ? Explain various provisions to claim credit under GST and its utilization.

(OR)

b) Discuss in detail the rules for determining place of supply under GST.

13.a) In what situations refund can be claimed under GST? What is ine procedure for claiming refund under GST ?

(OR)

b) Explain the records maintained under GST.

UG PROGRAM (4 Years Honors)

CBCS - 2020-21

B. Sc/ B.A
Computer Applications

Syllabus and Model Question Papers

TABLE OF CONTENTS

S.No	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of Course titles & Credits	4
	a) Proposed combination subjects:	4
	b) Student eligibility for joining in the course:	4
	c) Faculty eligibility for teaching the course	4
	d) List of Proposed Skill enhancement courses with syllabus, if any	4
	e) Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	4
	f) Required instruments/software/ computers for the course	5
	g) List of Suitable levels of positions eligible in the Govt/Pvt organizations	5
	h) List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	6
	i) Any specific instructions to the teacher /Course setters/Exam -Chief Superintendent	6
3	Program objectives, outcomes, co-curricular and assessment methods	6
4	Details of course-wise syllabus for Theory and Lab	9
5	Model Question Courses for Theory and Lab	12
6	Details of Syllabus on Skill Enhancement courses and Model Question Courses for Theory and Lab	

Note: BOS is to provide final soft copy in PDF and word formats and four copies of hard copies in bounded form to the office of Dean Academic affairs.

1. RESOLUTIONS OF THE BOARD OF STUDIES

Meeting held on: 22.01.2021. Time:10 A.M At: Adikavi Nannaya University, RJY

Agenda:

1. Adoption of revised-common program structure and revising/updating course - wise syllabi (in the prescribed format) as per the guidelines issued by APSCHE.
2. Adoption of regulations on scheme of examination and marks/grading system of the University UG programs.
3. Preparation of Model question Courses in prescribed format.
4. List of equipment/software requirement for each lab/practical
5. Eligibility of student for joining the course.
6. Eligibility of faculty for teaching the course.
7. List of Course-setters /Course evaluators with phone, email-id in the prescribed format

Members present:

Dr. P.Venkateshwara Rao	Chairman, Dept. of CSE, ANUR.
Mr.D.Dasu	Coordinator, Dept. of CSE, ANUR
Mrs. P S V D Gayatri	Member, Dept. of CSE, ANUR

Resolutions:

1. Resolved to adopt the revised-common program structure and revising/updating course-wise syllabi (in the prescribed format) as per the guidelines issued by APSCHE.
2. Resolved to adopt the regulations on scheme of examination and marks/grading system of the University UG programs.
3. Resolved to prepare the Model question Courses in prescribed format.
4. Resolved to give the list of equipment/software requirement for each lab/practical
5. Resolved the eligibility of student for joining the course
6. Resolved the eligibility of faculty for teaching the course
7. Resolved to give the list of Course-setters/Course evaluators with phone, email-id in the prescribed format

2. DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type **(T/L/P)**	Hrs/Week **(Arts:5+2)**	Credits **(Arts:4 +1)**	Max. Marks **Cont/ Internal /Mid -Assessment**	Max. Marks **Sem- end Exam**
I	1	Computer Fundamentals and Office Tools	T	5	4	25	75
		Computer Fundamentals and Office Tools Lab	L	2	1	-	50
II	2	Programming in C	T	5	4	25	75
		Programming in C Lab	L	2	1	-	50
III	3	Database Management System	T	5	4	25	75
		Database Management System Lab	L	2	1	-	50
IV	4	Object Oriented Programming using Java	T	5	4	25	75
		Object Oriented Programming using Java Lab	L	2	1	-	50
	5	Web Design	T	5	4	25	75
		Web Design Lab	L	2	1	-	50

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

a. Proposed combination subjects:
b. Student eligibility for joining in the course:
c. Faculty eligibility for teaching the course:
d. List of Proposed Skill enhancement courses with syllabus, if any:
e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources

f. Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students)

Sem. No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
1	Computer Fundamentals and Office Tools Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, MS-Office		15
2	Programming in C Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, C compiler with supporting editors		15
3	Database Management System Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, Oracle 8i/9i or SQL Server, MY SQL		15
4	Object Oriented Programming using Java Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, JDK		15
5	Web Design Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, Web browser, XAMP,MY SQL		15

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations Suitable levels of positions for these graduates either in industry/govt organization like, technical assistants/ scientists/school teachers, clearly define them, with reliable justification.

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
1	Software Programmer	IT Industry		
2	Software Developer	IT Industry		
3	Software Engineer	IT Industry		
4	Program Manager	IT Industry		
5	Clerk/PO	Banking Industry		
6	IT Specialist	Banking Industry		
7	Teacher/Lecturer/Asst.Prof	Education Institutes		
8	DB Admin	IT Industry/Medical		

h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects

S.No	Company/ Govt organization	Positio n type	Level of Position			
1	Software Development Industry					
2	E-Commerce Industry					
3	Medical Industry					
4	IT Industry					
5	Banking Industry					
6	Education Industry					

i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent

3. PROGRAM OBJECTIVES, OUTCOMES, CO-CURRICULAR AND ASSESSMENT METHODS

B.Sc/ B.A	Computer Applications

1. Aim and objectives of UG program in Subject: Computer Applications

The Objectives of this Program describes what students are expected to know and be able to do by the time of graduation. The Computer Science/Applications Department's Bachelor of Science program must enable students to attain, by the time of graduation:

- An ability to identify, formulate and develop solutions to computational challenges.
- An ability to design, implement and evaluate a computational system to meet desired needs within realistic constraints.
- An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.
- An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.
- An ability to communicate and engage effectively with diverse stakeholders.
- An ability to analyze impacts of computing on individuals, organizations, and society.
- Recognition of the need for and ability to engage in continuing professional development.
- An ability to use appropriate techniques, skills, and tools necessary for computing practice.
- Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.
- Developing and implementing solution based systems and/or processes that address issues and/or improve existing systems within in a computing based industry.

1. Learning outcomes of Subject Computer Applications:.
   - Students will be able to communicate in written and oral forms in such a way as to demonstrate their ability to present information clearly, logically, and critically..
   - Students will be able to apply mathematical and computing theoretical concepts in solution of common computing applications, such as computing the order of an algorithm.
   - Students will be able to complete successfully be able to program small-to-mid- size programs on their own. Sufficient programming skills will require use of good practice, e.g., good variable names, good use of computational units, appropriate commenting strategies.
   - Students will be able to use appropriately system design notations and apply system design engineering process in order to design, plan, and implement software systems
   - In a self-selected area of depth in Computing, students will demonstrate a depth of knowledge appropriate to graduate study and/or lifelong learning in that area. Students should be able to read for understanding materials in that area beyond those assigned in coursework.
   - Students will be prepared for a career in an information technology oriented business or industry, or for graduate study in computer applications or other scientific or technical fields.
   - Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems

2. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work.

3. Recommended Co-curricular activities: (Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
   1. Assignments
   2. Student seminars (Individual presentation of Courses)
   3. Quiz Programmes
   4. Individual Field Studies/projects
   5. Group discussion
   6. Group/Team
   7. Projects

   B. **General**
   1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
   2. Group Discussions
   3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
   4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprise tests),
- Closed-book and open-book tests,
- Coding exercises,
- Practical assignments and laboratory reports,
- Observation of practical skills,
- Individual and group project reports,
- Efficient delivery using seminar presentations,
- Viva voce interviews.
- Computerized adaptive testing, literature surveys and evaluations,
- Peers and self-assessment, outputs form individual and collaborative work

4. DETAILS OF COURSE-WISE SYLLABUS

B. Sc /B.A	Semester: I	Credits: 4
Course: 1	COMPUTER FUNDAMENTALS AND OFFICE TOOLS	Hrs/Wk: 5

1. Aim and objective of Course:
   To introduce the fundamental concepts of Computers, Hardware, Software and able to interact with documentation, Power point and Spreadsheet.
2. Learning outcomes of Course:
   1. To learn about Basics of Computers
   2. To learn about basics of Hardware Components
   3. To learn about basics of Operating System Software
   4. To learn about basics of Application System Software
   5. To practice handful exercises on Documentation, Spreadsheet, Presentation
3. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I: 12 Hrs

Basics of Computers : Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices.

UNIT II: 12 Hrs

Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware and People ware – Definition and Types of Operating System – Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Panel.

UNIT III: 10 Hrs

MS-Word: Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge.

UNIT, IV: 10 Hrs

MS-PowerPoint: Features of PowerPoint – Creating a Blank Presentation - Creating a Presentation using a Template - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures - Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation.

UNIT V: 12 Hrs

MS-Excel: Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns–Changing column widths and row heights, auto format, changing font sizes, colors, shading.

PRESCRIBED BOOKS:

1. Fundamentals of Computers by Reema Thareja, Second Edition, Publishers
2. Oxford University Press,India, ISBN: 9780199499274

REFERENCES:

1. Fundamentals of Information Technology Including Lab Work by Vinod Babu Bandari, Publishers : Pearson
2. Fundamentals of Computers by V.Raja Raman, Publishers : PHI
3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh and Faithe Wempen, Publishers : Wiley

1. Details of Lab Syllabus: **Computer Fundamentals and Office Tools LAB**

List of Experiments for Lab:

WORD:

1. Create curriculum vitae of a graduate
2. Design a visiting card for an Organization
3. Create a letter as the main document and create 5 records for the 5 persons use mail merge to create letter for selected persons among 5.
4. Macro's concept implementation.

SPREADSHEET:

1. Students Marks, Result, Grade & Rank Calculation

2. Number conversions:

Decimal to Octal, Hexa, Decimal, Binary
conversion Binary to decimal, octal, hexa decimal
conversion Octal to decimal, hexa decimal, binary
conversion Hexa decimal to decimal, octal, binary
conversion

Column Chart
Bar Chart
Pie Chart

POWERPOINT:

1. Make a Power point presentation about Social Network.
2. Make a Power point presentation about College.
3. Make a Power point presentation about the given topic.

5. RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real- time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

6. RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

MODEL QUESTION COURSE

B. Sc /B.A DEGREE EXAMINATION
SEMESTER: I
COMPUTER APPLICATIONS
Course 1: COMPUTER FUNDAMENTALS AND OFFICE TOOLS

Time: 3Hrs. Max. Marks: 75

Section - A

Answer any 5 question. **5X5 = 25M**

1. Write the Applications of Computers.
2. Define and write the types of Operating Systems.
3. Write the Features of MS-Word.
4. Write the Features of MS-Power Point.
5. Write the Features of MS-Excel.
6. Define and write examples for Software, Hardware, Firmware and People ware.
7. Write MS-Word Window Components.
8. Write about Types of effects in Custom Animation.

Section -B

Answer following question **5X10 = 50M**

9. a) Write about Classification of Computers based on size and working.

(OR)

b) Draw the block diagram of Computer and explain the functioning.

10. a) Write about different types of Memory.

(OR)

b) Explain the functions of Operating System.

11. a) Explain the process of inserting a table and write the properties of table in MS-Word.

(OR)

b) Write the process of mail merge to prepare progress reports of students in MS-Word.

12. a) Explain the process to inserting, resizing and scaling the objects in MS-Power Point.

(OR)

b) Write the process to prepare a power point presentation with designs and animations.

13. a) Write the process to prepare students results table using formulae in MS-Excel.

(OR)

b) What are the types of charts in Excel and write the process to insert a chart?

B. Sc /B.A	Semester: II	Credits: 4
Course: 2	PROGRAMMING IN C	Hrs/Wk: 4

1. Aim and objectives of Course:
   This course aims to provide exposure to problem-solving through programming. It introduces the concepts of the C Programming language.
2. Learning outcomes of Course:
   On completing the subject, students will be able to:

   1. Analyse a given problem and develop an algorithm to solve the problem.
   2. Understand tokens and control structures in C.
   3. Understand arrays and strings and implement them.
   4. Understand the right way of using functions, pointers, structures and unions in C
   5. Develop and test programs written in C.
3. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I: 12 Hrs

Introduction to Algorithms: Algorithm - Key features of Algorithms - examples of Algorithms, Flow Charts.

Introduction to C : Structure of C Program, Writing the first C Program , Files used in C Program, Compiling and Executing C Programs, Using Comments, Keywords, Identifiers, Basic Data Types in C, Variables, Constants, I/O Statements in C, Operators in C, Type Conversion and Type Casting.

UNIT II: 16 Hrs

Control and Looping Statements: Introduction to Decision Control Statements, Conditional Branching Statements, Iterative Statements, Nested Loops, Break and Continue Statement, Goto Statement.

Functions: Introduction, using functions – Function declaration/ prototype – Function definition function call – return statement – Passing parameters, Recursive functions.

UNIT III: 16 Hrs

Arrays: Introduction, Declaration of Arrays , Accessing elements of the Array – Storing Values in Array, One dimensional array -declaration, initialization, Accessing one dimensional array, Passing one dimensional array to function, Two dimensional Arrays- declaration, initialization, Accessing two dimensional arrays, passing two dimensional arrays to functions.**Strings:** Introduction, String and Character functions**,** String Operations using String functions- strcat() , strcmp() , strcpy() , strlen().

UNIT IV: 8 Hrs

Pointers: declaring Pointer Variable, Pointer Expressions and Pointer Arithmetic , Passing Arguments to Functions using Pointers, Memory Allocation in C Programs, Drawbacks of Pointers.

UNIT V: 8 Hrs

Structures: Introduction to structures, Arrays of Structures, Nested Structures.

Union and Enumerated Data Types: Introduction to Union – accessing union elements**,** Enumerated Data Types.

TEXT BOOKS:

1. Computer Fundamentals and Programming in C by REEMA THAREJA from OXFORD UNIVERSITY PRESS

REFERENCE BOOKS:

1. E Balagurusamy - Programming in ANSI C Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The ‘C’ Programming language” - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. YashavantKanetkar - Let Us ‘C’ BPB Publications**.**

4. Details of Lab Syllabus: **Programming in C Lab**

List of Experiments

1. Write a C program to calculate the expression: ((a*b)/c)+(a+b-c)
2. Write a C program to calculate $(a+b+c)^3$.
3. Write a C Program to convert temperature from

a. Celsius to Fahrenheit.

b. Fahrenheit to Celsius.

4. Write a C program to find roots of quadratic equation.
5. Write a C Program to convert Hours into seconds.
6. Write a C program to Find Biggest of Three numbers.

i. Write a C program to read student marks in five subjects and calculate the Total, Average and Grade according to the following conditions:

ii.If average >=75 grade is _A‘.

iii.If average >=60 and <75 grade is _B‘.

iv. If average >=50 and <60 grade is _C‘.

v. Otherwise grade is _D‘.

vi.Check that marks in each subject >= 35.

7. Write a C Program to display number of days in given month using Switch – -Case.
8. Write a C Program to check whether a given number is perfect or Not.
9. Write a C program to check whether the given number is Prime or Not.
10. Write a C program to Check whether given number is Palindrome or Not.
11. Write a C Program to check whether a given number is Armstrong or Not.
12. Write a C program to print Fibonacci Series.
13. Write a C program to print multiplication tables up to given range.
14. Write a C program to perform i) Matrix addition ii) Matrix Multiplication.
15. Write a C program to find largest number in the array.
16. Write a C Program to find factorial of a given number using functions.
17. Write a C Program to accept and display Student Details using Structures.
18. Write a C Program to swap two numbers using different parameter passing techniques.

5. RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real- time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

6. RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION COURSE

B. Sc /B.A DEGREE EXAMINATION
SEMESTER: II
COMPUTER APPLICATIONS Course-II
Course 2: PROGRAMMING IN C

Time: 3Hrs. Max. Marks: 75

Section -A

Answer any 5 question **5X5 = 25M**

1. What is Flow chart and draw the symbols used in flowchart.
2. Write about the conditional branching statements in C.
3. Define Array and write Declaration, initialization and accessing of elements in Array.
4. Write the Drawbacks of Pointers.
5. What the difference between Structure and Union.
6. Write about the basic Data Types used in C.
7. Write about function declaration, definition and calling.
8. Write about Nested Structures.

Section - B

Answer following question **5X10 = 50M**

9. a) Explain about the operators in C with examples.

(OR)

b) Explain the Structure of C program with example.

10. a) Explain about different types of Loops available in C.

(OR)

b) Explain about Parameter passing techniques with examples.

11. a) Write algorithm and C Program for Matrix multiplication.

(OR)

b) Explain the String operations using String functions in C.

12. a) Explain about Passing Arguments to Functions using Pointers.

(OR)

b) Explain about Memory Allocation in C Programs.

13. a) Explain about creating a structure and accessing elements of structure with example.

(OR)

b) Explain about Enumerated Data Types with example program.

B. Sc / B. A	Semester: III	Credits: 4
Course: 3	DATABASE MANAGEMENTSYSTEMS	Hrs/Wk: 4

1. Aim and objectives of Course:

    1. To educate student regarding databases and how to manage databases.
    2. To provide knowledge about creating relationships.
    3. To provide knowledge about dependencies and relational constraints.
    4. To enable student to write various types of queries for handling data.

2. Learning outcomes of Course:

    On completing the subject, students will be able to:

    1. Gain knowledge of Database and DBMS.
    2. Understand the fundamental concepts of DBMS with special emphasis on relational data model.
    3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
    4. Model database using ER Diagrams and design database schemas based on the model.

3. Create a small database using SQL.
4. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I: 12Hrs

Introduction: Data and Information**, Characteristics of the Database Approach:** Self-Describing Nature of the a Database System, Insulation between Programs and Data, Data Abstraction, Support of Multiple Views of the data, Sharing of Data and multiuser Transaction Processing, **Actors on the Scene:** Database Administrators, Database Designers, End Users, System Analysts and Application, Advantages of DBMS, **Data Models, Schemas and Instances:** Categories of Data Models, Schemas, Instances, and Database State**, DBMS Architecture and Data Independence:** The Three-Schema Architecture, Data Independence**.**

UNIT II: 12 Hrs

Entity Relationship Model: Introduction, Entity types, Entity sets, Attributes and Keys, Entities and Attributes, Entity Types, Entity Sets, Keys and Value Sets, Relationships, Relationship types, Roles, and Structural Constraints, Relationship Types, Sets and Instances, Relationship Degree, Role Names, and Recursive Relationships, Constraints on Relationship Types, Attributes of Relationship Types, Weak Entity Types, ER Diagrams, Naming Conventions, and Design Issues

Enhanced Entity-Relationship: Subclasses, super classes, and inheritance, Specialization and Generalization, Constraints and characteristics of Specialization and Generalization.

UNIT III: 12 Hrs

The relational data model, Relational Constraints: Introduction, Relational Model Concepts, Domains, Attributes, Tuples and Relations, Characteristics of Relations, Relational Model Notation Relational Constraints and Relational **Database Schemas:** Domain Constraints, Key Constraints and Constraints on Null, Relational Databases and Relational Database Schemas, Entity Integrity, Referential Integrity and Foreign Keys **Functional Dependencies and normalization for Relational Databases:** Functional Dependencies, Definition of Functional Dependency, Inference Rules for Functional Dependencies, Equivalence of sets of Functional Dependencies, Minimal Sets of Functional Dependencies, **Normal forms based on primary keys**: Introduction to Normalization, First Normal Form, Second Normal Form, Third Normal Form.

UNIT IV: 12 Hrs

The Relational Algebra: Basic Relational Algebra Operation, The SELECT Operation, The PROJECT operation, Sequences of Operations and the, RENAME Operation, Set Theoretic Operations, The JOIN Operation, A Complete Set of Relational Algebra Operations, The DIVISION Operation, **Additional Relational Operations:** Aggregate Functions and Grouping, Recursive Closure Operations, OUTER JOIN and OUTER UNION Operations

UNIT V: 12 Hrs

SQL (STRUCTURED QUERY LANGUAGE): Data Definition, Constraints and Schema changes in SQL, The CREATE TABLE Command and SQL Data Types and Constraints, The DROP SCHEMA and DROP TABLE Command, The ALTER TABLE Command, The SELECT-FROM-WHERE Structure of SQL Queries WHERE-Clause , Aggregate Functions and Grouping, Insert, Delete, and Update Statements in SQL, The INSERT Command, The DELETE Command

TEXT BOOKS:

1. "Fundamentals of Database Systems" by R.Elmasri and S.Navathe.
2. "Introduction to Database Management System" Atul Kahate Pearson Education *ISBN*: 9789332505537.
3. "Database System Concepts" by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010.

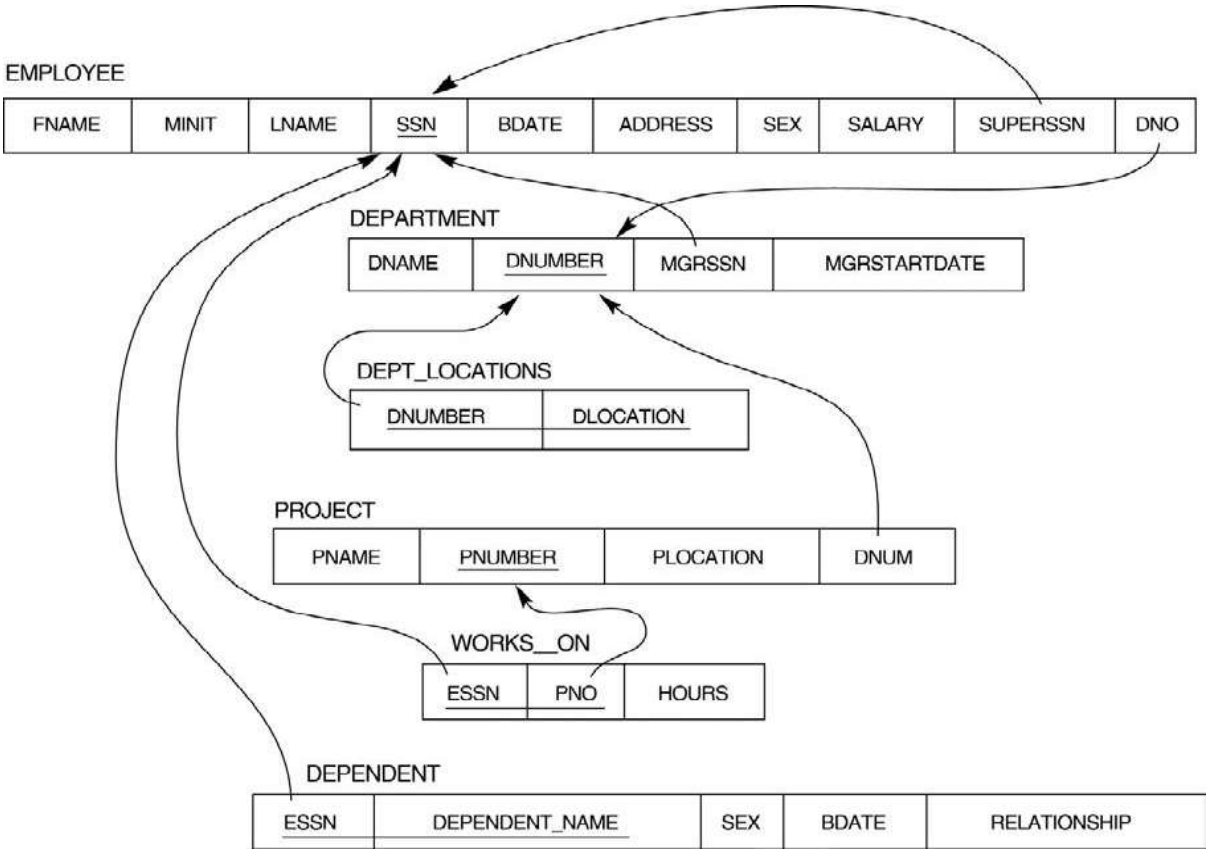
REFERENCE BOOKS:

1. "Database Management Systems" by Raghu Ramakrishnan, NcGrawhill,2002
2. "Prinicples of Database Systems" by J.D.Ullman.
3. "An Introduction to Database Systems" by Bipin C Desai.
4. "Fundamentals of Relational Database Management Systems" by S.Sumathi, S. Esakkirajan, Springer Publications

4. Details of Lab Syllabus: **DATABASE MANAGEMENT SYSTEMS LAB**

1. Draw ER diagram for hospital administration
2. Creation of college database and establish relationships between tables
3. Relational database schema of a company is given in the following figure.

Relational Database Schema - COMPANY



Questions to be performed on above schema

1. Create above tables with relevant ***Primary Key, Foreign Key and other constraints***
2. Populate the tables with data
3. Display all the details of all employees working in the company.
4. Display ***ssn, lname, fname, address*** of employees who work in department no 7.
5. Retrieve the ***Birthdate and Address*** of the employee whose name is 'Franklin T. Wong'
6. Retrieve the name and salary of every employee
7. Retrieve all distinct salary values

8. Retrieve all employee names whose address is in ‘Bellaire’
9. Retrieve all employees who were born during the 1950s
10. Retrieve all employees in department 5 whose salary is between 50,000 and 60,000(inclusive)
11. Retrieve the names of all employees who do not have supervisors
12. Retrieve SSN and department name for all employees
13. Retrieve the name and address of all employees who work for the 'Research' department
14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.
15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
16. Retrieve all combinations of Employee Name and Department Name
17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan’ either as a worker or as a manager of the department that controls the project.
18. Increase the salary of all employees working on the 'ProductX' project by 15%. Retrieve employee name and increased salary of these employees.
19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employee first name.
20. Select the names of employees whose salary does not match with salary of any employee in department 10.

5. RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

6. RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION COURSE

B. Sc /B.A DEGREE EXAMINATION
SEMESTER: III
COMPUTER APPLICATIONS
Course 3: DATABASE MANAGEMENT SYSTEMS

Time: 3Hrs. Max. Marks: 75

Section - A

Answer any 5 question **5X5 = 25M**

1. Define Database management systems.
2. What is a Data Model?
3. What is Specialization?
4. What is a Weak Entity?
5. What is referential integrity Constraint?
6. Define Functional Dependency?
7. List out Aggregate Functions
8. Explain SQL Data Types.

Section -B

Answer following question **5X10 = 50M**

9. a) What are the characteristics of the Database? Explain the responsibilities of the Actors of the database.

(OR)

b) Explain about the Three-Schema Architecture with the help of a neat diagram.

10. a) Discuss the convention for constructing an ER-diagram along with an example.

(OR)

b) Discuss the Enhanced Entity-Relationship with a suitable example.

11. a) Explain the concepts of relational model with example.

(OR)

b) What is Normalization? Explain 1NF, 2NF, 3NF, BCNF and multivalve dependency.

12. a) Discuss various types of Join operations with examples.

(OR)

b) List the operations of relational algebra and the purpose of each.

13. a) Explain Data Definition Commands with example database and queries for each command.

(OR)

b) Explain Data Manipulation Commands with suitable queries

B.Sc /B.A	Semester: IV	Credits: 4
Course: 4	OBJECT ORIENTATED PROGRAMMING USING JAVA	Hrs/Wk: 4

1. Aim and objectives of Course:
   To introduce the fundamental concepts of Object-Oriented programming and to design & implement object oriented programming concepts in Java.
2. Learning outcomes of Course:
   1. Understand the concept and underlying principles of Object-Oriented Programming, Understand how object-oriented concepts are incorporated into the Java programming language.
   2. Implement Object Oriented Programming Concepts (class, constructor, overloading, inheritance, overriding) in java.
   3. Create and use interfaces in a Java.
   4. Implement Multithreading, exception handling in Java.
   5. Create and use packages and applets
3. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I: 12Hrs

FUNDAMENTALS OF OBJECT – ORIENTED PROGRAMMING: Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features.

OVERVIEW OF JAVA LANGUAGE: Simple Java program structure, Java tokens, Implementing a Java Program, Java Virtual Machine, Command line arguments.

CONSTANTS, VARIABLES & DATATYPES: Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Getting Value of Variables, Operators in Java.

UNIT II: 12Hrs

DECISION MAKING & BRANCHING: Decision making with if statement- Simple if statement**,** If - Else statement**,** Nesting of if- else statements, The else if ladder**,** The switch statement**,** The conditional operator.

LOOPING: The While statement, The do-while statement, The for statement.

CLASSES, OBJECTS & METHODS: Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members.

UNIT III: 12Hrs

INHERITANCE: Extending a class, Overriding methods, Final variables and methods, Final classes, Abstract methods and classes. **ARRAYS, STRINGS :**Arrays, One-dimensional arrays, Two – dimensional arrays, Strings. **INTERFACES:** Introduction to multiple inheritance, Defining interfaces, Extending interfaces, Implementing interfaces.

UNIT IV: 12Hrs

MULTITHREADED PROGRAMMING: Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods. **MANAGING ERRORS AND EXCEPTIONS:** Types of errors, Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement.

UNIT V: 12Hrs

APPLET PROGRAMMING: Local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle:-Initialization state, Running state, Idle or stopped state, Dead state, Display state. **PACKAGES:** Java API Packages, Creating Packages, Accessing a Package, Using a Package.

TEXT BOOKS:

1. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.

REFERENCES:

1. Core Java: An Integrated Approach, Authored by Dr. R. Nageswara Rao &Kogent Learning Solutions Inc.
2. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TATA McGraw-Hill Company.
3. Deitel &Deitel. Java TM: How to Program, PHI (2007)
4. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

4. Details of Lab Syllabus: **Object Orientated Programming using Java Lab**

1. Java program to generate Harmonic Series (1/1+1/2+….+1/n).
2. Java program to display even, odd numbers and their sum upto given number n.
3. Java program to find a sub string in the given string.
4. Java program to arrange the given strings in Alphabetic Order.
5. Java program to implement Addition and multiplication of two Matrices.
6. Java program to demonstrate the use of Constructor.
7. Java program to implement method overloading.
8. Java program to demonstrate Method overriding.
9. Java program for single Inheritance.
10. Java program for implementing Interface.
11. Java program on Multiple Inheritance.
12. Java program to implement Threads.
13. Java program to demonstrate Exception handling.
14. Java program to demonstrate Applets.

5. RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real- time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

6. RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION COURSE

B. Sc /B.A DEGREE EXAMINATION
SEMESTER: IV
COMPUTER APPLICATIONS
Course 4: OBJECT ORIENTED PROGRAMMING USING JAVA

Time: 3Hrs. Max. Marks: 75

Section - A

Answer any 5 question **5X5 = 25M**

1. What are the benefits of Object oriented programming?
2. Explain different data types in Java?
3. Describe simple 'if statement' with example?
4. What is overriding method and give one example?
5. Explain one-dimensional array?
6. Write short notes on threads?
7. How to terminate a thread?
8. Explain local and remote applets?

Section - B

Answer following question **5X10 = 50M**

9. a) Explain basic concepts of object oriented programming?

(OR)

b) Discuss different operator in java?

10. a) What is switch statement? and write a program using switch statement?

(OR)

b) Explain constructors and types of constructors with an example?

11. a) Briefly explain about final, finally and finalize key words?

(OR)

b) Explain interface with an example?

12. a) Explain life cycle of a thread with example?

(OR)

b) Discuss different types of exception handlings?

13. a) Explain applet life cycle with an example?

(OR)

b) Explain java API packages?

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B.Sc / B.A	Semester: IV	Credits: 4
Course: 5	WEB DESIGN	Hrs/Wk: 4

1. Aim and objectives of Course:
   To introduce the fundamental concepts of HTML, PHP, MySQL and able to design the web pages using scripting languages.
2. Learning outcomes of Course:
   1. To learn about Basic tags in Html.
   2. To learn about the CSS and Java Script.
   3. To learn about the Building Blocks of php, functions.
   4. To learn about working with Forms, Sessions, Cookies.
   5. To learn about Interacting with MySQL using PHP.
3. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I: 10 Hrs

Introduction to HTML: Introduction to HTML and World Wide Web, Basic html, Document body, text, Hyperlinks, Adding more formatting Lists, Tables, Images, Multimedia Objects, Frames, Forms.

UNIT II: 13 Hrs

CSS and Java Script: CSS: Introduction, Using Styles: Simple Examples, Defining your own Styles, Properties and Values in Styles, Stylesheets-A worked example, Formatting Blocks of Information, Layers. Java Script: Dynamic HTML, JavaScript-The basics, variables, String manipulation, Mathematical functions, Statements, Operators, Arrays, Functions, Data validation.

UNIT III: 10Hrs

Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants. Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output. Working with Functions: Defining Functions, Calling functions, returning the values from User Defined Functions, Variable Scope, Saving State between Function calls with the Static statement, more about arguments.

UNIT IV: 14Hrs

Working with Forms: Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads. Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsettling Variables, Using Sessions in an Environment with Registered Users.

UNIT V: 13Hrs

Interacting with MySQL using PHP: MySQL Versus MySQL Function, Connecting to MySQL with PHP, Working with MySQL Data. Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

TEXT BOOKS:

1. Chris Bates, Web Programming Building Internet Application, Second Edition, Wiley (2007)
2. Head First Servlets and JSP 2nd Edition, Bryan Basham, Kathy Sierra 3. Uttam Kumar Roy, Web Technologies from Oxford University Press.
3. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach yourself, Pearson Education (2007).
4. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).

4. Details of Lab Syllabus: **Web Design Lab**

List of Laboratory Experiments:

HTML

1. Write an HTML program to demonstrate text formatting, working with image and hyper links
2. Write an HTML program to create Student Marks sheet preparation.
3. Write an HTML program to explain String manipulation-using functions.
4. Write an HTML program to explain <form> events
5. Write an HTML program to perform all arithmetic operations using java script.
6. Develop a HTML Form, which accepts any Mathematical expression.

PHP Programs

7. Introduction To PHP programming, XAMPP Tool and Dreamweaver Editor Write a Simple Hello Program in PHP by Installing & Configuring XAMPP with Dreamweaver
8. Study Of Basic Building Blocks In PHP Write a Program in PHP for type Casting Of a Variables
9. Study Of Control Structure & Loops In PHP Write a Program In PHP to Display Multiplication Table Using Nested For Loop
10. Study Of Array and Function In PHP Write a program In PHP to Sort an array using function (Bubble Sort)
11. Study Of Form handling In PHP Design a personal Information form , then Submit & Retrieve the Form Data Using $_GET(), $_POST() and $_REQUEST() Variables
12. Study Of Server Side Validation and Page Redirection In PHP Design A Login Form and Validate that Form using PHP Programming
13. Study Of Cookies And Sessions In PHP Create Admin Login, Logout form using session variables.
14. Write a PHP application to add new Rows in a Table.
15. Write a PHP application to modify the Rows in a Table.
16. Write a PHP application to delete the Rows from a Table.
17. Write a PHP application to fetch the Rows in a Table.

MySQL Lab Cycle -Experiments:

Cycle -1:
An Enterprise wishes to maintain the details about his suppliers and other corresponding details. For that, he uses the following details.

Suppliers (sid: Integer, sname: string, address: string)
Parts (pid: Integer, pname: string, color: string)
Catalog (sid: integer, pid: integer, cost: real)

The catalog relation lists the prices charged for parts by suppliers.

Write the following queries in SQL:
1. Find the pnames of parts for which there is some supplier.
2. Find the snames of suppliers who supply every part.
3. Find the snames of supplier who supply every red part.
4. Find the pnames of parts supplied by London Supplier abd by no one else.
5. Find the sid‟s of suppliers who charge more for some part than the average cost of that part.
6. For each part, find the sname of the supplier who charges the most for that part.
7. Find the sid‟s of suppliers who supply only red parts.
8. Find the sid‟s of suppliers who supply a red and a green part.
9. Find the sid‟s of suppliers who supply a red or green part.
10. Find the total amount has to pay for that suppler by part located from London.

Cycle – 2:
An organisation wishes to maintain the status about the working hours made by his employees. For that, he uses the following tables.

Emp (eid: integer, ename: string, age: integer, salary: real)
Works (eid: integer, did: integer, pct_time: integer)
Dept (did: integer, budget: real, managerid: integer)

An employee can work in more than one department; the pct_time field of the works relation shows the percentage of time that a given employee works in a given department.
Resolve the following queries.

11. Print the names and ages of each employee who works in both Hardware and Software departments.
12. For each department with more than 20 full time equivalent employees (i.e., where the part-time and full-time employees add up to at least that many full-time employees), print the did‟s together with the number of employees that work in that department.
13. Print the name of each employee whose salary exceeds the budget of all of the departments that he or she work in.
14. Find the managerid‟s of managers who manage only departments with budgets greater than 1,000,000.
15. Find the enames of managers who manage the departments with largest budget.
16. If a manager manages more than one department, he or she controls the sum of all the budgets for those departments. Find the managerid‟s of managers who control more than 5,000,000.
17. Find the managerid‟s of managers who control the highest amount.
18. Find the average manager salary.

5. RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
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4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity**)**

5. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

6. RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION COURSE

B. Sc /B.A DEGREE EXAMINATION
SEMESTER: IV
COMPUTER APPLICATIONS
Course 5: WEB DESIGN

Time: 3Hrs. Max. Marks: 75

Section - A

Answer any 5 question **5X5 = 25M**

1. What are the applications of World Wide Web?
2. Write the properties and values in Style Sheets.
3. Write about Operators and Expressions in PHP.
4. How to combine HTML and PHP code on a single Page?
5. Write the differences between MySQL and MySQL Function.
6. Write how to insert an image in to a web page using HTML.
7. Write about string manipulation in Java Script.
8. How to Set a Cookie with PHP?

Section - B

Answer following question **5X10 = 50M**

9. a) What are the types of Lists, explain with examples.

(OR)

b) Explain about Forms and Form Controls with example program.

10. a) Explain the types of CSS with examples.

(OR)

b) Create a Web Form and write java Script code for Data validation in that form.

11. a) Explain about Flow Control Functions in PHP.

(OR)

b) Explain how to return the values from User Defined Functions with example.

12. a) Write the process how to Send Mail on Form Submission.

(OR)

b) Explain about passing Session IDs and Destroying Sessions.

13. a) Explain about Connection to MySQL with PHP and Working with MySQL Data..

(OR)

b) Explain about Creating Record Addition Mechanism.

UG PROGRAM (4 Years Honors)
CBCS-2020-21
(With History, Economics and Political Science Disciplines)

B.A
POLITICAL SCIENCE

Syllabus and Model Question Papers

DETAILS OF COURSE TITLES & CREDITS

Sem	Courses No	Name of Course	Course Type (T/L/P)	Hours/Week (Arts:5)	Credits (Arts:4)	Max. Marks Cont/ Internal /Mid - Assessment	Max. Marks Sem- end Exam
I	1	Introduction to Political Science	**T**	**5**	**4**	**25**	**75**
II	2	Basic Organs of the Government	**T**	**5**	**4**	**25**	**75**
III	3	Indian Government and Politics	**T**	**5**	**4**	**25**	**75**
IV	4	Indian Political Process	**T**	**5**	**4**	**25**	**75**
	5	Western Political Thought	**T**	**5**	**4**	**25**	**75**
Total				**25**	**20**	**125**	**375**

Note: *Course type code: T: Theory, L: Lab, P: Problemsolving

B.A	Semester: I	Credits: 4
Course: 1	Introduction To Political Science	Hrs/Wk: 5

Learning Outcomes:

On successful completion of the course the students will be able to;

- Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science.
- Understand concepts intrinsic to the study of Political Science.
- Have solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies.
- Apply the knowledge to observe the field level phenomena

UNIT I:

INTRODUCTION:

1. Definition, Nature, Scope and Importance of Political Science – Relations with allied disciplines (History, Economics, Philosophy and Sociology).
2. Approaches to the study of Political Science: Traditional Approaches-Philosophical, Historical. Modern Approaches-Behavioral and System Approach.

UNIT II:

STATE:

1. Definition of the State, Elements of the State, Theories of Origin of the State-(Divine Origin, Force, Evolutionary and Social Contract).
2. Concepts of Modern State and Welfare State.

UNIT III:

CONCEPTS OF POLITICAL SCIENCE:

1. Law, Liberty, Equality.
2. Power, Authority and Legitimacy.

UNIT IV:

THEORIES OF RIGHTS:

1. Meaning, Nature and Classification of Rights**.**
2. Theories of Rights.

UNIT V:

POLITICAL IDEOLOGIES:

1. Liberalism, Individualism, Anarchism.
2. Socialism, Marxism and Multiculturalism.

REFERENCE BOOKS:

➢ A.C. Kapur	:	*Principles of Political Science*
➢ R.C.Agarwal	:	*Political Theory*
➢ J.C.Johari	:	*Contemporary Political Theory*
➢ Amaj Ray & Bhattacharya	:	*Political Theory and Institutions*
➢ O.P.Gauba	:	*An Introduction to Political Theory*
➢ Abbas, Hoveyda&Ranjay Kumar	:	*Political Theory*
➢ Andrew Hakes	:	*Political Theory: Philosophy, Ideology, Science*
➢ J.C.Johari	:	*Principles of Modern Political Science*
➢ RajeevBhargava& Ashok Acharya(ed)	:	*Political Theory-An Introduction*
➢ Andrew Heywood	:	*Political Ideologies-An Introduction*
➢ Norman Barry	:	*An Introduction to Modern Political Theory*
➢ JadiMusalaiah, V.Vasundhara Devi &V.Bhogendracharyulu, Prof.V.RavindraSastry (ed)	:	*Political Science Concepts, Theories & Institutions*
➢ Laski, H.J.	:	*Grammar of Politics*
➢ A.Appadorai	:	*Substance of Politics*
➢ Eddy Ashirvadam&K.K.Misra	:	*Political Theory*
➢ SushilaRamaswamy	:	*Political Theory: Ideas & Concepts, Political Theory & Thought, Key Concepts in Political Theory*
➢ VidyaDhar Mahajan	:	*Political Theory (Principles of Political Science)*
➢ S.P.Varma	:	*Modern Political Theory*

ANNEXURE

CO-CURRICULAR ACTIVITIES RECOMMENDED

Measurable Co-curricular Activities (A uniform format may be designed and marks allotted)
• Simple, medium and critical Assignments on current topics
• Class Seminars
• Quiz Programme
• Study Projects on field related problems, individual and Group
• Preparation of Alternate Theoretical Models to the existing systems/functions
• Debates on current issues.
General Co-Curricular Activities
• Preparation of Photo Album. Students' Open Forums
• Collection of news reports from dailies and magazines and maintaining a record of Course clippings.
• Group Discussions on problems relating to the syllabus and outside
• Watching TV discussions, recording individual observations and preparing summary points
• Celebration of important events.
• Encouragement to students to use various digital online tools (Google forms, Google Class room, edmodo, testmoz, kahoot, edpuzzle, moodle etc.,), Open source software, Open educational resources
• Cooperative Learning and Peer Teaching
• Comparative study of the Rights that citizens are enjoying around the globe
• Creative and imaginative activities beyond the prescribed syllabus

B.A	Semester: II	Credits: 4
Course: 2	Basic Organs Of The Government	Hrs/Wk: 5

Learning Outcomes:

On successful completion of the course the students will be able to:

- Understand the Origin and Evolution of the concept of Constitutionalism andclassification of Constitutions.
- Acquaint themselves with different theories of origin of State.
- Understand and analyses organs and forms of Governments along with a deep insight intothe various agents involved in the political process.
- Apply the knowledge to analyse and evaluate the existing systems

UNIT I:

CONSTITUTION:

1. Meaning, Definition, Origin and Evolution of Constitution.
2. Classification of the Constitutions-Written and Unwritten; Rigid and Flexible.

UNIT II:

ORGANS OF THE GOVERNMENT:

1. Theory of Separation of Powers-B.D.Montesquieu.
2. Legislature-Unicameral and Bicameral-Power and Functions, Executive-Types,Powers and Functions. Judiciary-Powers and Functions.

UNIT III:

FORMS OF GOVERNMENT:

1. Unitary and Federal forms of Governments-Merits and Demerits.
2. Parliamentary and Presidential forms of Governments- Merits and Demerits.

UNIT IV:

DEMOCRACY:

1. Meaning, Definition, Significance, Theories and Principles of Democracy.
2. Types of Democracy: Direct and Indirect Democracy-Methods, Merits and Demerits-Essential Conditions for Success of Democracy.

UNIT V:

POLITICAL PARTIES, PRESSURE GROUPS AND PUBLIC OPINION:

1. Meaning, Definition and Classification of Political Parties: National and Regional-Functions of Political Parties.
2. Pressure Groups (Interest Groups)- Meaning, Definition, Types, Functions and Significance of Public Opinion.

REFERENCE BOOKS:

➢ SukhbirBhatnagar	:	*Constitutional Law and the Governance*
➢ A.C.Kapur	:	*Select Constitutions*
➢ R.C.Agarwal	:	*Political Theory*
➢ VidyaDhar Mahajan	:	*Political Theory (Principles of Political Science)*
➢ M.R.Biju	:	*Democratic Political Process*
➢ PeterRonald de Souja&E.Sreedharan (ed)	:	*Indian Political Parties*
➢ JadiMusalaiah, V.Vasundhara Devi &V.Bhogendracharyulu, Prof.V.RavindraSastry (ed)	:	*Political Science Concepts, Theories & Institutions*
➢ Laski. H.J.	:	*Grammar of Politics*
➢ A.Appadorai	:	*Substance of Politics*
➢ Eddy Ashirvadam&K.K.Misra	:	*Political Theory*
➢ SushilaRamaswamy	:	*Political Theory: Ideas & Concepts*
➢ S.P.Varma	:	*Modern Political Theory*

ANNEXURE

CO-CURRICULAR ACTIVITIES

• All Co-curricular activities recommended at Course – I
• Study of the outline features of Constitutions of U.S.A, U.K., Australia, Canada, South Africa, China and Japan in comparison to the Constitution of India.
• Study projects on selected local real time problems.
• Field visits to government establishments.

B.A	Semester: III	Credits: 4
Course: 3	Indian Government And Politics	Hrs/Wk: 5

Learning Outcomes:

On successful completion of the course the students will be able to:

- Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution.
- Analyze the relationship between State and individual interms of Fundamental Rights and Directive Principles of State Policy.
- Understand the composition of and functioning of Union Government as well as State Government and finally
- Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms.

UNIT I:

SOCIAL AND IDEOLOGICAL BASE OF THE INDIAN CONSTITUTION:

1. Constitutional Development in India during British Rule-A Historical Perspective with reference to Government of India Acts, 1909,1919and 1935.
2. Constituent Assembly-Nature, Composition, Socio-Economic, Philosophical Dimensions and Salient Features of the Indian Constitution.

UNIT II:

INDIVIDUAL AND STATE:

1. Fundamental Rights, Directive Principles of State Policy and Fundamental Duties-Differences between Fundamental Rights and Directive Principles of State Policy.
2. The 'Doctrine of Basic Structure of the Constitution' with reference to Judicial Interpretations and Socio-Political Realities.

UNIT III:

UNION EXECUTIVE:

1. President of India-Mode of Election, Powers and Functions.
2. Parliament-Composition, Powers and Functions, Legislative Committees, Prime Minister and Council of Ministers-Powers andFunctions, Role in Coalition Politics

UNIT IV:

STATE EXECUTIVE:

1. Governor-Mode of Appointment, Powers and Functions.
2. Legislature-Composition, Powers and Functions, Chief Minister and Council of Ministers-Powers and Functions

UNIT V:

THE INDIAN JUDICIARY:

1. Supreme Court-Composition and Appointments, Powers and Functions or Jurisdiction of the Supreme Court, Judicial Review, Judicial Activism.
2. High Court-Composition, Powers and Functions, Debates on the mode of appointment of Judges-National Judicial AppointmentsCommission and Judicial Reforms.

REFERENCE BOOKS:

➢ M.V.Pylee	:	*Indian Constitution,* *Constitutional Government in India* *Constitutional History of India*
➢ Durga Das Basu	:	*An Introduction to the Constitution of India*
➢ Rajni Kothari	:	*Politics in India*
➢ SanghMittra	:	*Indian Constitution Acts (East India Company to Independence)*
➢ Hoshiar Singh, P.C.Mathur&Pankaj Singh (ed)	:	*Coalition Governments & Good Governance*
➢ B.C.Fadia	:	*Indian Government and Politics*
➢ SubhashC.Kashyap	:	*Concise Encyclopedia of Indian Constitution*
➢ P.B.Rathod&VimlaRathod	:	*Indian Constitution, Government and Political System*
➢ Verinder Grover (ed)	:	*Federal System, State Autonomy and Centre-State Relations in India.*
➢ Prof.Lalaiah,P.Venkatarama na, K.SaiBaba&K.Mallesam, Prof.V.RaveendraSastry (ed)	:	*Indian Government-Politics*
➢ M.Lakshmikant	:	*Indian Polity*
➢ R.C.Agarwal& Mahesh Bhatnagar	:	*Constitutional Development and National Movement of India*
➢ Singh &Saxena	:	*Indian Politics : Contemporary Issues and Concerns*
➢ Austin Granville	:	*The Indian Constitution : Cornerstone of a Nation, Working of a Democratic Constitution : The Indian Experience*
➢ W.H.Morris Jones	:	*Government and Politics of India*
➢ M.P.Jain	:	*Indian Constitutional Law*
➢ Subhash C. Kashyap.	:	*Our Constitution, Our Parliament, Our Political*

		System
➢ A.S.Narang	:	*Indian Political System, Process and Development*
➢ Rajeev Bhargav	:	*Politics and Ethics of the Indian Constitution*
➢ Bipin Chandra	:	*Nationalism & Colonialism in Modern India*
➢ Paul R.Brass	:	*The Politics in India since Independence*
➢ K.SubrataMitra	:	*Politics in India : Structure, Process and Policy*
➢ S.H.Patil	:	*The Constitution, Government and Politics in India*
➢ VishnooBhagwan&VidyaBhusan	:	*Indian Administration*

ANNEXURE

CO-CURRICULAR ACTIVITIES

• All Co-curricular activities recommended at Course – I
• Peers and self-assessment outputs from individual and collaborative work.
• Individual observations in field studies and recordings in the areas related to syllabus
• Conduct of a Mock Parliament on important current issues for awareness about the proceedings of the Parliament, intensity of debates and understanding the outcomes.
• A Field Visit to a Court to observe the structure and its exercise of powers.
• Discussion of Previous Question Courses relating to Services (Service Commissions and other Recruitment Agencies) for an understanding of different approaches
• Study projects on selected local real time problems.

B.A	Semester: IV	Credits: 4
Course: 4	INDIAN POLITICAL PROCESS	Hrs/Wk: 5

Learning Outcomes:

On successful completion of the course the students will be able to :

- Know and understand the federal system of the country and some of the vital contemporary emerging issues.
- Evaluate the electoral system of the country and to identify the areas of electoral reforms.
- Know the constitutional base and functioning of local governments with special emphasis on 73rd& 74th Constitutional Amendment Acts.
- Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.
- Apply the knowledge and critically comprehend the functioning of some of the regulatory and governance institutions.
- Propose theoretical outline alternate models.

UNIT I:

FEDERAL PROCESSES:

1. Features of Indian Federal System- Centre-State Relations-Legislative, Administrative and Financial.
2. Emerging Trends in Centre-State Relations-Restructuring Centre- State Relations-Recommendations of Sarkaria Commission, M.M.Punchi Commission.

UNIT II:

ELECTORAL PROCESSES:

1. The Election Commission of India, Powers and Functions.
2. Issues of Electoral Reforms, Voting Behaviour-Determinants and Problems of Defections.

UNIT III:

GROSSROOT DEMOCRACY-DECENTRALISATION:

1. Panchayat Raj system-Local and Urban Governments-Structure, Powers and Functions.
2. Democratic Decentralization-Rural Development and Povertyalleviation with reference to 73rd and 74th Constitutional Amendment Acts, Challenges and Prospects.

UNIT IV:

SOCIAL DYNAMICS AND EMERGING CHALLENGES TO INDIAN POLITICAL SYSTEM:

1. Role of Caste, Religion, Language and Regionalism in India.
2. Politics of Reservation, Criminalization of Politics and Internal threats to Security.

UNIT V:

REGULATORY AND GOVERNANCE INSTITUTIONS:

1. NITI Ayog, Finance Commission, Comptroller and Auditor General of India.
2. Central Vigilance Commission, Central Information Commission, Lokpal and Lokayukta.

REFERENCE BOOKS:

➢ M.V.Pylee	:	*Indian Constitution* *Constitutional Government in India*
➢ D.D.Basu	:	*An Introduction to the Constitution of India*
➢ Rajni Kothari	:	*Politics in India, Caste in Indian Politics*
➢ PeuGhosh	:	*Indian Government and Politics*
➢ Prof.Lalaiah, P.Venkataramana, K.SaiBaba&K.Mallesam, Prof.V.RaveendraSastry (ed)	:	*Indian Government-Politics*
➢ M.R.Biju	:	*Democratic Political Process*
➢ J.K.Chopra (ed)	:	*Local Self-Government and Municipal Administration*
➢ Susan Bayly	:	*Caste, Society and Politics in India (From the Eighteenth Century to the Modern Age)*
➢ SubharataDutta	:	*Democratic Decentralisation and Grossroot Leadership in India*
➢ H.V.Hande	:	*Dr.B.R.Ambedkar& The Making of the Indian Constitution*
➢ S.K.Sharma&UshaSarma	:	*Politics and Administration in India- A Retrospective Survey*
➢ Hari Prasad Chhetri	:	*Panchayatraj System and Development Planning*
➢ B.C.Fadia	:	*Indian Government and Politics*
➢ UpendraBaxi&Biku Parekh	:	*Crisis and Change in Contemporary India*
➢ M.Lakshmikant	:	*Indian Polity,Governance in India*
➢ N.G.Jayal (ed)	:	*Democracy in India*
➢ Peter Ronald deSouza&E. Sridharan	:	*India's Political Parties*
➢ O.P.Tiwari	:	*Federalism and Centre-State Relations in India*
➢ AthulKohli (ed)	:	*The Success of India's Democracy*
➢ C.B.Raju	:	*Social Justice and the Constitution of India*
➢ V.K.Garg	:	*Caste and Reservation in India*

➢ U.Baxi	:	*The Indian Supreme Court and Politics* *Parliamentary Procedure, Law Privilege, Practice &Precedents*
➢ VishnooBhagwan&VidyaBhushan	:	*Indian Administration*
➢ S.H.Patil	:	*The Constitution, Government and Politics in India*

ANNEXURE

CO-CURRICULAR ACTIVITIES

• All Co-curricular activities recommended at Course – I & III
• A Field Visit to a Court / District Jail / Local Government Office to observe the structure and functioning
• Viva voce interviews.
• Computerised adaptive testing, literature surveys and evaluations.
• Encouragement to students to contribute articles to the magazines and seminars

B.A	Semester: IV	Credits: 4
Course: 5	WESTERN POLITICAL THOUGHT	Hrs/Wk: 5

Learning Outcomes:
On successful completion of the course the students will be able to:

- Understand the fundamental contours classical, western political philosophy, basic features of medieval political thought and shift from medieval to modern era.
- Understand the Social Contract Theory and appreciate its implications on the perception of State in terms of its purposes and role.
- Acquaint with the Liberal and Marxist philosophy and analyze some trends in Western Political Thought.
- Critically analyse the evolution of western political thought.

UNIT I:
ANCIENT GREEK POLITICAL THOUGHT:

1. Plato-Rule of Philosopher Kings-Theory of Justice-Ideal State and Education
2. Aristotle-Theory of State-Classification of Governments-Citizenship, Slavery and Theory of Revolutions.

UNIT II:
MEDIEVAL AND MODERN POLITICAL THOUGHT:

1. St.Augustine-Theory of Two Cities.
2. Niccolo Machiavelli-State and Statecraft.

UN IT III:
CONTRACTUAL POLITICAL THOUGHT:

1. Thomas Hobbes- Social Contract and Absolute Sovereignty.
2. John Locke- Human Nature, State of Nature, Social Contract, Natural Rights and Limited Government.
3. Jean Jacques Rousseau- Human Nature, State of Nature, Social Contract, General Will and Popular Sovereignty

UNIT IV:
UTILITARIAN POLITICAL THOUGHT:

1. Jermy Bentham-Theory of Utility, Law and Reforms.
2. J.S.Mill-Theory of Liberty and Representative Government.

UNIT V:
MARXIST POLITICAL THOUGHT:

1. Karl Marx-Dialectical Materialism, Theory of Surplus Value and Class Struggle.
2. Antonio Gramsci-Hegemony and Civil Society.

REFERENCE BOOKS:

➢ O.P.Gauba	:	*Western Political Thought*
➢ G.H.Sabine	:	*A History of Political Theory*
➢ E.Baker	:	*Greek Political Theory : Plato and His Predecessors*
➢ Subrata Mukherjee & Sushila Ramaswamy	:	*A History of Political Thought-Plato to Marx*
➢ ShefaliJha	:	*Western Political Thought -From Plato to Marx*
➢ B.N.Ray	:	*Western Political Thought*
➢ RadheyShamChaurasia	:	*History of Western Political Thought*
➢ P.B.Rathod	:	*Ancient and Medieval Political Thinkers-From Plato to Padua*
➢ Andrew Hakes	:	*Political Theory :Philosophy, Ideology and Science*
➢ HaratiDwarakanath, Prof.G.Lalaiah, K.Saibaba, K.Ramachandra Murthy &V.Bhogendracharyulu, Prof.V.RavindraSastry (ed)	:	*Political Thought*
➢ Anil Kumar Mukopadhyay	:	*An Introduction to Political Theory, Western Political Thought*
➢ William Ebenstien	:	*Great Political Thinkers-Plato to the Present Modern Political Thought, The Great Issues*
➢ J.P.Sudha	:	*History of Political Thought*
➢ H.J.Laski	:	*Political Thought from Bentham to Locke*
➢ C.L.Wayper	:	*Political Thought*

ANNEXURE

CO-CURRICULAR ACTIVITIES

➢ All Co-curricular activities recommended at Course – I & III
➢ Peers and self-assessment, out puts from individuals and collaborative work.
➢ Assignments that encourage the study of standard Reference Books available at Library
➢ Assignments of the emerging trends after Marxian Philosophy in the era of Globalisation

MODEL QUESTION COURSE & PATTERN

B.A DEGREE EXAMINATION

SEMESTER:

Max. Marks: 75 **Time: 3 hrs**

SECTION A

(Answer any **five questions**. Each question carries **5 marks** (Total: 5x5=25 Marks)
(2 questions should be given from each Unit)

1.
2.
3.
4.
5.
6.
7.
8.

SECTION B

(Answer all **questions**. Each question carries **10 marks** (Total: 5x10 = 50 Marks)

(Two questions should be given with internal choice from each Unit)

9.A

(Or)

B

10. A.

(Or)

B.

11. A

(Or)

B

12. A

(Or)

B

13. A

(Or)

B

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ADIKAVI NANNAYA UNIVERSITY
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MODEL QUESTION PAPER

Semester: I
Paper: **INTRODUCTION TO POLITICAL SCIENCE**

Time: 3 hours Max Marks: 75

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least TWO questions should be given from each unit)

1. Explain the relations between the Political science and Economics.
   రాజనీతి శాస్త్రానికి, అర్థశాస్త్రానికి మధ్య గల సంబంధాలను వివరింపుము.
2. Explain the historical approach.
   చారిత్రక అధ్యయన పద్ధతిని వివరింపుము.
3. Explain the theory of Divine Origin.
   దైవ దత్తాధికార సిద్ధాంతమును గూర్చి వివరింపుము.
4. Concept of Modern State.
   ఆధునిక రాజ్య భావన.
5. Types of Equality.
   సమానత్వ రకాలను వివరింపుము.
6. Classification of Rights.
   హక్కుల వర్గీకరణ.
7. Concept of Liberalism.
   ఉదారవాద భావన.
8. What is Marxism?
   మార్క్సిజం అనగానేమి?

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. Define Political Science and explain the scope and importance of the Political Science.
   రాజనీతి శాస్త్రమును నిర్వచించి, దాని యొక్క పరిధి ప్రాముఖ్యతను గూర్చి వ్రాయుము.

(OR)

10. Explain the Traditional study methods of Political Science.
    రాజనీతి శాస్త్ర అధ్యయన సాంప్రదాయ పద్ధతులను వివరింపుము.

11. Critically examine the Rousseau Social contract theory.
    రూసో సామాజిక ఒడంబడిక సిద్ధాంతమును విమర్శనాత్మకంగా పరిశీలించుము.

(OR)

12. Define State and explain its features.
    రాజ్యమును నిర్వచించి దాని లక్షణాలను వివరింపుము.

[P.T.O.]

13. Define law and explain the sources of the law.
శాసనమును నిర్వచించి దాని మూలాధారాలను వివరింపుము.

(OR)

14. What is Authority and discuss important elements of Legitimacy?
అధికారం అనగానేమి? చట్టబద్ధత యొక్క ముఖ్యమైన అంశాలను గూర్చి చర్చించుము?

15. What is the Rights? Explain the types of Rights.
హక్కులు అనగానేమి? వాటి రకాలను తెల్పుము.

(OR)

16. Explain the Laski theory of Rights.
లాస్కి హక్కుల సిద్ధాంతమును వివరింపుము.

17. Discuss the individualism.
వ్యక్తి శ్రేయోవాదం గూర్చి చర్చించుము.

(OR)

18. Explain about the Socialism.
సామ్యవాదం గూర్చి వివరింపుము.

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MODEL QUESTION PAPER

Semester: II
Paper: BASIC ORGANS OF THE GOVERNMENT

Time: 3 hours Max Marks: 75

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least TWO questions should be given from each unit)

1. Define the Constitution.
రాజ్యాంగమును నిర్వచించుము.
2. Explain the merits of written constitution.
లిఖిత రాజ్యాంగ లాభనష్టాలను వివరించుము.
3. Explain advantages of the Bicameral System.
ద్విసభా విధాన ప్రయోజనాలను తెల్పుము.
4. Explain the Judiciary Powers.
న్యాయవ్యవస్థ అధికారాలను వివరింపుము.
5. Unitary form of Government Demerits.
ఏకకేంద్ర ప్రభుత్వ విధాన లోపాలు.
6. Merits of Parliamentary Government.
పార్లమెంటరీ ప్రభుత్వ ప్రయోజనాలు.
7. Functions of Regional Parties.
ప్రాంతీయ పార్టీల విధులు.
8. Pressure Groups.
ప్రభావ వర్గాలు.

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. Explain the Origin and Evolution of the constitution.
రాజ్యాంగ పుట్టుక మరియు పరిణామమును తెల్పుము.

(OR)

10. Write about the Rigid and Flexible constitutions.
దృఢ మరియు అదృఢ రాజ్యాంగాల గురించి వ్రాయండి.

11. Write about the theory of Separation of Powers.
అధికారపృథక్కరణ సిద్ధాంతము గురించి వివరించుము.

(OR)

12. Explain the Powers and functions of Legislature.
శాసనసభ యొక్క అధికారాలు మరియు విధులను వివరింపుము.

[P.T.O.]

13. Explain the merits and demerits of unitary forms of Government.
ఏకకేంద్ర ప్రభుత్వం యొక్క లాభనష్టాలను వివరింపుము.

(OR)

14. Explain the merits and demerits of Presidential forms of Government.
అధ్యక్షతరహా ప్రభుత్వం యొక్క లాభనష్టాలను వివరింపుము.

15. Define the Democracy and explain the meaning and significance.
ప్రజాస్వామ్యము నిర్వచించి, దాని అర్థము మరియు దాని ప్రాముఖ్యతను వివరింపుము.

(OR)

16. Explain the essential conditions for success of Democracy?
ప్రజాస్వామ్య విజయవంతానికి కావలసిన అనుకూల పరిస్థితులను వివరింపుము.

17. Explain the functions of National Parties.
జాతీయ పార్టీల యొక్క విధులను వివరింపుము.

(OR)

18. Define the Public opinion and explain the types of Public opinion.
ప్రజాభిప్రాయం నిర్వచించి, ప్రాజాభిప్రాయ రకాలను వివరింపుము.

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MODEL QUESTION PAPER

Semester: III
Paper: INDIAN GOVERNMENT AND POLITICS

Time: 3 hours Max Marks: 75

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least TWO questions should be given from each unit)

1. Explain about the 1909 Act.
   1909 చట్టం గూర్చి వివరింపుము.
2. Explain the nature of constituent Assembly.
   రాజ్యాంగ సభ స్వభావాన్ని గూర్చి వివరింపుము.
3. Difference between the fundamental rights and duties.
   ప్రాధమిక హక్కులు మరియు విధుల మధ్య భేదాలను తెల్పుము.
4. Explain about functions of the Parliament.
   పార్లమెంట్ విధులను గూర్చి వివరింపుము.
5. Write about the Coalition Politics.
   సంకీర్ణ రాజకీయాల గురించి వ్రాయుము.
6. Write about the appointment of Governor.
   గవర్నర్ నియామకమును గూర్చి వివరింపుము.
7. Write about the appointment of Supreme Court Judge.
   సుప్రీం కోర్టు జడ్జి నియామకమును గూర్చి వివరింపుము.
8. Explain the Judicial Activism.
   న్యాయ వ్యవస్థ క్రియాశీలత గూర్చి తెల్పుము.

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. Write about the 1935 Act.
   1935 చట్టాన్ని గూర్చి వివరింపుము.

(OR)

10. Explain the salient features of the Indian Constitution.
    భారతరాజ్యాంగ మౌలిక లక్షణాలను వివరింపుము.

11. Write about the type of Fundamental Rights.
    ప్రాధమిక హక్కుల రకాలను గూర్చి వివరింపుము.

(OR)

12. Explain the Basic structure of the Indian Constitution.
    భారతరాజ్యాంగం యొక్క మౌలిక స్వరూపమును వివరింపుము.

[P.T.O.]

13. Explain about the Powers and Functions of President of India.
రాష్ట్రపతి యొక్క అధికారాలు మరియు విధులను వివరింపుము.

(OR)

14. Write about the functions of Prime Minister.
ప్రధానమంత్రి యొక్క అధికారాలు మరియు విధులను వివరింపుము.

15. Explain the Powers and functions of Governor.
గవర్నర్ యొక్క అధికారాలు మరియు విధులను వివరింపుము.

(OR)

16. Explain about the Powers and functions of Chief Minister.
ముఖ్యమంత్రి యొక్క అధికారాలు మరియు విధులను వివరింపుము.

17. Explain the Powers and functions of Supreme Court.
సుప్రీం కోర్టు అధికారాలు మరియు విధులను వివరింపుము.

(OR)

18. Write about the National Judicial appointments Commission.
జాతీయ న్యాయ నియమాకాల కమీషన్ గూర్చి వివరింపుము.

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ADIKAVI NANNAYA UNIVERSITY
RAJAHMAHENDRAVARAM, A.P., INDIA
UG- BLUE PRINT (2020-21 onwards)

MODEL QUESTION PAPER

Semester: IV
Paper: **INDIAN POLITICAL PROCESS**

Time: 3 hours Max Marks: 75

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least TWO questions should be given from each unit)

1. Explain the features of Indian Federal system.
   భారత సమాఖ్య వ్యవస్థ లక్షణాలు వివరింపుము.
2. M.M. Punchi Commission.
   M.M.పుంచి కమీషన్.
3. What are the determinant factors of Voting behaviour?
   ఓటరు యొక్క ప్రవర్తనను ప్రభావితం చేసే అంశాలు?
4. Explain the structure of Urban Government.
   పట్టణ ప్రభుత్వ నిర్మాణమును వివరింపుము.
5. 74th constitution amendment.
   74వ రాజ్యాంగ సవరణ.
6. Explain the role of Cast in India.
   భారతదేశంలో కులం యొక్క పాత్రను వివరింపుము.
7. Explain the NITI AYOG.
   నీతి అయోగ్‌ను గూర్చి వివరింపుము.
8. Explain the central information commission.
   కేంద్ర సమాచార కమీషన్ గూర్చి వివరింపుము.

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. Explain the Centre State Relation.
   కేంద్ర, రాష్ట్రాల సంబంధాలను వివరింపుము.

(OR)

10. Explain the Recommendations of Sarkaria commission.
    సర్కారియా కమీషన్ సిఫార్సులను గూర్చి వివరింపుము.

11. Analyse the Functions of Election commission.
    ఎలక్షన్ కమీషన్ విధులను విశ్లేషించుము.

(OR)

12. Write about the Electoral Reforms in India.
    భారతదేశంలో ఎన్నికల సంస్కరణలను గురించి వ్రాయుము.

[P.T.O.]

13. Explain the Powers and functions of Local Governments.
స్థానిక ప్రభుత్వాల యొక్క అధికారాలు, విధులను వివరింపుము.

(OR)

14. Write about the 73rd constitution amendment.
73వ రాజ్యాంగ సవరణను గురించి వ్రాయుము.

15. Explain the role of language and regionalism in India.
భారతదేశంలో భాష మరియు ప్రాంతీయవాదం పాత్రను గూర్చి వివరింపుము.

(OR)

16. Analyse the Political Reservation system in India.
భారతదేశంలో రాజకీయ రిజర్వేషన్ వ్యవస్థను వివరింపుము.

17. Explain the Powers and Functions of the comptroller and Auditor General of India.
భారత కంట్రోలర్ మరియు ఆడిటర్ జనరల్ యొక్క అధికారాలను, విధులను వివరింపుము.

(OR)

18. Write about the Lokpal and Lokayukta.
లోక్‌పాల్ మరియు లోకాయుక్తను గురించి వ్రాయుము.

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ADIKAVI NANNAYA UNIVERSITY
RAJAHMAHENDRAVARAM, A.P., INDIA
UG- BLUE PRINT (2020-21 onwards)

MODEL QUESTION PAPER

Semester: IV
Paper: **WESTERN POLITICAL THOUGHT**

Time: 3 hours Max Marks: 75

SECTION – A

Answer any 5 questions. Each question carries 5 marks (5 X 5M = 25M)
(Total 8 questions and at least TWO questions should be given from each unit)

1. Theory of Justice.
   న్యాయ సిద్ధాంతం.
2. Write about the Citizenship.
   పౌరసత్వమును గూర్చి వ్రాయుము.
3. Explain the Statecraft.
   స్టేట్ క్రాఫ్ట్‌ను వివరింపుము.
4. Write about the absolute Sovereignty.
   నిరపేక్ష సార్వభౌమాధికారం గూర్చి వ్రాయండి.
5. Write about the John Locke nature of the State.
   జాన్ లాక్ రాజ్య స్వభావమును గూర్చి వ్రాయుము.
6. Locke Natural Rights.
   లాక్ సహజ హక్కులు.
7. Write about the Class struggle.
   వర్గ పోరాటం గూర్చి వ్రాయుము.
8. Write about the Rousseau popular Sovereignty.
   రూసో ప్రజాదారణ పొందిన సార్వభౌమాధికారం గూర్చి వ్రాయుము

SECTION – B

Answer all the questions. Each question carries 10 marks (5 X 10M = 50M)

9. Write about Plato Ideal State.
   ప్లాటో ఆదర్శ రాజ్యము గూర్చి వ్రాయుము.

(OR)

10. Explain classification of Governments.
    ప్రభుత్వాల వర్గీకరణను వివరింపుము.

11. Write about St. Augustine theory of two cities.
    పెయింట్ ఆగస్టీన్ రెండు నగరాల సిద్ధాంతమును గూర్చి వ్రాయము.

(OR)

12. Analyse the Machiavelli theory of State.
    మాకియావెల్లి రాజ్య సిద్ధాంతమును విశ్లేషింపుము.

[P.T.O.]

13. Write about the Hobbes Social Contract.
హాబ్స్ సాంఘిక ఒప్పందం గూర్చి వ్రాయుము.

(OR)

14. Write about the Rousseau nature of the State.
రూసో రాజ్య స్వభావమును గూర్చి వ్రాయుము.

15. Explain about the Jermy Benthan theory of utility.
జెర్మి బెంథామ్ ఉపయోగితా సిద్ధాంతమును గూర్చి వివరింపుము

(OR)

16. Analyse the JS Mill theory of Liberty.
జెస్ మిల్ స్వేచ్ఛా సిద్ధాంతమును విశ్లేషించుము.

17. Explain about Karl Marks theory of Surplus value.
కారల్ మార్క్స్ మిగులు విలువల సిద్ధాంతమును గూర్చి వ్రాయుము.

(OR)

18. Explain about the Gramsci Civil Society.
గ్రామ్సి పౌర సమాజమును గూర్చి వివరింపుము.

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UG PROGRAM (4 Years Honors)
CBCS - 2020-21

B.Sc
PHYSICS

Syllabus and Model Question Papers

TABLE OF CONTENTS

S. No	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of Course titles & Credits	4
	a. Proposed combination subjects:	4
	b. Student eligibility for joining in the course:	4
	c. Faculty eligibility for teaching the course	4
	d. List of Proposed Skill enhancement courses with syllabus, if any	4
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	4
	f. Required instruments/software/ computers for the course	5
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	6
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	6
	i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent	6
3	Program objectives, outcomes, co-curricular and assessment methods	7
4	Details of course-wise syllabus for Theory and Lab	10
5	Model Question Courses for Theory and Lab	29
6	Details of Syllabus on Skill Enhancement courses and Model Question Courses for Theory and Lab	--

Note: BOS is to providefinal soft copy in PDF and word formats and four copies of hard copies in bounded form to the office of Dean Academic affairs.

1. Resolutions of the Board of Studies

Meeting held on: Dt.22.01.2021…….Time:10.00AM
At: ANUR, Convention Hall, Rjy

Agenda:

1. Adoption of vised-common program structure and revising/updating course-wise syllabi as per guidelines issued by APSHE.
2. Adoption of regulations on scheme of examination and marks/grading system of university UG programme.
3. Preparationof Model Courses in prescribed format.
4. List ofequipment/software requirement for each lab/ practical.
5. Eligiblity of student joining in the course.
6. Eligiblity of faculty for teaching the course.
7. Specific instructions to the teachers/ Course-setters / CS/ Course Evaluator.
8. List of Course-setters/ Course evaluators.

Members present:

1. Dr. K. Srinivas Rao Chairman, VSM College (A), Ramachandrapuram.Ao
2. Dr. S Rajya Laskhmi, Coordinator, ANUR, Rajahmundry.
3. Sri Ch Phani Kumar, Member, Aditya Degree College for Women, Rajamundry.

Resolutions:

1. Resolved to adopt the revised common program structure and verifying course wise syllabus as per guidelines issued by APSHE.
2. Resolved to continue the scheme of examination, pattern of examination external 75Marks and internal assessment 25Marks. However for all Practical LSC and SDC no internal assesment. All practical courses will be conducted for 50Marks and 3 Hrs duration. For evaluation of practical present system is followed.
3. Model Question Courses are prepared as per guidelines given by APSHE.
4. Also resolved to conduct piratical 2hrs per week and 4hrs theory per week. List of practical is revised.
5. Opinion of members taken into consideration for eligibility into course.
6. Resolved teaching staff eligibility as per guidelines.
7. By taking the recommendations of member guidelines are fomulated for question Courses setters and others.
8. List of Course setters is approved by BOS.
9. Panel of examiners is also approved by BOS.

2. DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./Week (Science: 4+2)	Credits (Science: 4+1)	Max. Marks Cont/ Internal/Mid Assessment	Max. Marks Sem-end Exam
I	1	Mechanics, Waves & Oscillations	T	4	4	25M	75M
	2	Practila course -1	L	2	1	0	50M
II	3	Wave Optics	T	4	4	25M	75M
	4	Practial Course - 2	L	2	1	0	50M
III	5	Heat & Thermodynamic	T	4	4	25M	50M
	6	Practial Course - 3	L	2	1	0	50M
IV IV	7	Electricity, Magnetism & Electronics	T	4	4	25M	50M
	8	Practical Course - 4	L	2	1	0	50M
	9	Modern Physics	T	4	4	25M	50M
	10	Practical Course - 5	L	2	1	0	25M

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

a. Proposed combination subjects:

Physics is one of the subject at Graduation in B.Sc (Mathematics, Physics and Chemistry,B Sc (Mathematics, Physics and Computer Science), B. Sc. (Mathematics, Physics and Electronics, B. Sc. (Mathematics, Physics and Geology), B. Sc. (Geology, Physics and Chemistry).

b. Student eligibility for joining in the course:

PHYSICS is the one of the subject in Intermediate Physics.

c. Faculty eligibility for teaching the course

PG in Physics as per UGC norms.

d. List of Proposed Skill enhancement courses with syllabus, if any --- NO ----

e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources

---------- NO ----------

f. Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students)

Sem. No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
1	P. Course 1:	Travelling MicroScope, Fly Wheel, Aspirator bottle, Compound pendulum, Stop Watches, Sono meter, Melde's apparatus, Screw gauge, Tuning forks set	Micron[1], PISCO	Each 5
2	P. Course - 2	Spectrometer, Transmission Grating, Prisim, Polarimeter, Telescope, plane glass plates, sodium vapor lamp, Mercury lamp, Convex lenses and Mercury	Micron, PISCO	Each 5
3.	P.Course - 3	Joules calorimeter, Lees apparatus, Electrical Kettle, Thermocouple, Stefans constant appratus, CarryFosters bridge	Micron, PISCO	Each 5
4.	P. Course - 4	LCR kit, Power supply, Ammeter, Voltmeter, Digital Multi Meter, Stewart & Gee's apparatus, Transister charactersitics kit, Half adder & Full adder kit and barmagnets	Micron, PISCO	Each 5
5.	P. Course - 5	e/m kit, photo cell kit, energy band gap kit, thermister kit, GM Counter with source	Micron, PISCO	

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations

Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
1.	Clerk	IBPS		Skill in functional English, and aptitude.
2.	SSC	Central Govt.		Skill in functional English, and aptitude with GK.
3.	Assit Programmer	MNC (Soft ware Companies)		Skill in functional English, and aptitude and expected domain skills
4.	Technical assistant	Pharma copanies,	Chemistry background student	Along with aptitude and English, domain skills.

h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects

S.No	Company/ Govt organization	Position type	Level of Position			
1	A V V V Prasad	Managing Director		Solar Systems Kakinada	944o573389	

i. Any specific instructions to the teacher /Course setters/Exam-Chief Superintendent
1. Follow the syllabus prescribed by BoS and see that no deviation.
2. Questions in Course should clear and there should no ambiguity.
3. In Translation into telugu care should be taken, some case question is entirely different in telugu and english.
4. Minimum importance should be given to numerical problemls,
5. Log tables and Calculators may be allowed

3. Program objectives, outcomes, co-curricular and assessment methods

B Sc	PHYSICS

1. Aim and objectives of UG program in Subject:
   To align with emerging and employment areas.
2. Learning outcomes of Subject
   Semester - 1: Mechanics, Waves & Oscillations:

On successful completion of this course, the students will be able to:

- Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section.
- Apply the rotational kinematic relations, the principle and working of gyroscope and itapplications and the processional motion of a freely rotating symmetric top.
- Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.
- Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.
- Examine phenomena of simple harmonic motionand the distinction between undamped, damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.
- Appreciate the formulation of the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical systems.
- Figure outthe formation of harmonics and overtones in a stretched string and acquire the knowledge on Ultrasonic waves, their production and detection and their applications in different fields.

Semester - 2: Wave Optics:

On successful completion of this course, the student will be able to:

- Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror due to division of wave front and (ii) Thin films, Newton's rings and Michelson interferometer due to division of amplitude.
- Distinguish between Fresnel's diffraction and Fraunhoffer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.
- Describe the construction and working of zone plate and make the comparison of zone plate with convex lens.
- Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity..
- Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.3
- Explain about the different aberrations in lenses and discuss the methods of minimizing them.
- Understand the basic principles of fibreoptic communication andexplore the **field of**

Holography and Nonlinear optics and their applications.

Semester - 3 : Heat and Thermodynamics:

On successful completion of this course, the student will be able to:

- Understand the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases
- Gain knowledge on the basic concepts of thermodynamics, the first and the second lawof thermodynamics, the basic principles of refrigeration,the concept of entropy,the thermodynamic potentials and their physical interpretations.
- Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency
- Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.
- Differentiate between principles and methods to produce low temperature and liquefyair and also understand the practical applications of substances at low temperatures.
- Examine the nature of black body radiations and the basic theories.

Semester - 4 : Electricity, Magnetism and Electronics:

On successful completion of this course, the students will be able to:

- ❖ Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant.
- ❖ Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
- ❖ Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.
- ❖ Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.
- ❖ Phenomenon of resonance in LCR AC-circuits, sharpness of resonance,Q- factor,Power factor and the comparative study of series and parallel resonant circuits.
- ❖ Describe the operation of p-n junction diodes, zener diodes, light emitting diodes and transistors
- ❖ Understand the operation of basic logic gates and universal gates and their truth tables.

Semester - 4: Modern Physics :

On successful completion of this course, the students will be able to:

- ❖ Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.
- ❖ Develop critical understanding of concept of Matter waves and Uncertainty principle.

- ❖ Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.
- ❖ Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors.
- ❖ Classify Elementary particles based on their mass, charge, spin, half life andinteraction.
- ❖ Get familiarized with the nano materials, their unique properties and applications.
- ❖ Increase the awareness and appreciation of superconductors and their practical applications.

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work

---------- NO ----------

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

A. Measurable:

1. Assignments on:

2. Student seminars (Individual presentation of Courses) on topics relating to:
   Quiz Programmes on: RIndividual Field Studies/projects: Motion of Rocket,SHM applications
3. Group discussion on:
4. Group/Team Projects on:

B General

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
2. Group Discussions on:
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

Details of course-wise Syllabus

BSc	Semester: I	Credits: 4
Course: 1	Mechanics, Waves and Oscillations	Hrs/Wk: 4

Learning outcomes:

- To understand basic theories related with properties of matter and its applications to determine values of various physical quantities associated with matter.
- Be able to apply knowledge of the properties of matter to explain natural physical processes and related technological advances.
- To learn about fundamentals of verbal and mathematical concepts of waves and oscillations
- We should make the students to know their skills required to get the information from the syllabus and use them in a proper way

UNIT I:

Mechanics of Particles: Review of Newton's Laws of Motion, Motion of variable mass system, Motion of a rocket, Multistage rocket, Concept of impact parameter, scattering cross-section, Rutherford scattering-Derivation.

Mechanics of Rigid bodies: Rigid body, rotational kinematic relations, Equation of motion for a rotating body, Angular momentum and Moment of inertia tensor, Euler equations, Precession of a spinning top, Gyroscope, Precession of the equinoxes

UNIT II:

Motion in a Central Force Field: Central forces, definition and examples, characteristics of central forces, conservative nature of central forces, Equation of motion under a central force, Kepler's laws of planetary motion- Proofs, Motion of satellites, Basic idea of Global Positioning System (GPS), weightlessness, Physiological effects of astronauts

UNIT III:

Relativistic Mechanics: Introduction to relativity, Frames of reference, Galilean transformations, absolute frames, Michelson-Morley experiment, negative result, Postulates of Special theory of relativity,Lorentz transformation, time dilation, length contraction, variation of mass with velocity, Einstein's mass-energy relation.

UNIT IV:

Undamped, Damped and Forced oscillations: Simple harmonic oscillator and solution of the differential equation, Damped harmonic oscillator, Forced harmonic oscillator – Their differential equations and solutions, Resonance,Logarithmic decrement, Relaxation time and Quality factor.

Coupled oscillations: Coupled oscillators - introduction , Two coupled oscillators, Normal coordinates and Normal Modes.

UNIT V:

Vibrating Strings: Transverse wave propagation along a stretched string, General solution of wave equation and its significance, Modes of vibration of stretched string clamped at ends, Overtones andHarmonics.

Ultrasonic's: Ultrasonics, General Properties of ultrasonic waves, Production of ultrasonics by piezoelectric and magnetostriction methods, Detection of ultrasonics, Applications of ultrasonic waves, SONAR

REFERENCE BOOKS:

1. Sc. Physics, Vol.1, Telugu Academy, Hyderabad
2. Fundamentals of Physics Vol. I - Resnick, Halliday, Krane ,Wiley India 2007
3. College Physics-I. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.
4. University Physics-FW Sears, MW Zemansky& HD Young,Narosa Publications,Delhi
5. Mechanics, S.G.Venkatachalapathy, Margham Publication, 2003.
6. Waves and Oscillations. N. Subramanyam and Brijlal, VikasPulications.
7. Unified Physics - Waves and Oscillations, Jai PrakashNath&Co.Ltd.
8. Waves & Oscillations. S.Badami, V. Balasubramanian and K.R. Reddy, OrientLongman.
9. The Physics of Waves and Oscillations, N.K.Bajaj, Tata McGraw Hill
10. Science and Technology of Ultrasonics- Baldevraj, Narosa, New Delhi,2004

BSc	Semester: I	Credits: 1
Course: 1	Mechanics, Waves and Oscillations Lab	Hrs/Wk: 2

Details of Lab/Practical/Experiments/Tutorials syllabus:

Minimum of 6 experiments to be done and recorded:

1. Young's modulus of the material of a bar (scale) by uniform bending
2. Young's modulus of the material a bar (scale) by non- uniform bending
3. Surface tension of a liquid by capillary rise method
4. Viscosity of liquid by the flow method (Poiseuille's method)
5. Bifilar suspension –Moment of inertia of a regular rectangular body.
6. Fly-wheel -Determination of moment of inertia
7. Rigidity modulus of material of a wire-Dynamic method (Torsional pendulum)
8. Volume resonator experiment
9. Determination of 'g' by compound/bar pendulum
10. Simple pendulum- normal distribution of errors-estimation of time period and the error of the mean by statistical analysis
11. Determination of the force constant of a spring by static and dynamic method.

11. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

A. Measurable:

1. Assignments on: Motion of a rocket, Multistage rocket, Rutherford scattering-Derivation. Precession of a spinning top, Gyroscope, Precession of the equinoxes, Kepler's laws of planetary motion-Proofs, Motion of satellites, Michelson-Morley experiment, negative result, Postulates of Special theory of relativity, Lorentz transformation, Simple harmonic oscillator and solution of the differential equation, Damped harmonic oscillator, Forced harmonic oscillator – Their differential equations and solutions, Transverse wave propagation along a stretched string, Production of ultrasonics by piezoelectric and magnetostriction methods, Detection of ultrasonics, Coupled Oscillators

2. Student seminars (Individual presentation of Courses) on topics relating to: Motion of variable mass system, Motion of a rocket, Multistage rocket, Rutherford scattering-Derivation. Rigid body, rotational kinematic relations, Equation of motion for a rotating body. Central Forces- Kepler's laws, Special theory of relativity, Michelson Morley experiment, Lorentz transformation, Simple Harmonic Motion, Coupled Oscillators, Ultrasonics,

Quiz Programmes on: Rutherford Scattering, Mechanics of rigid bodies,Keplers laws, Special theory of relativity,SHM,Ultrasonics

3. Individual Field Studies/projects:
4. Group discussion on: Newtons Laws of Motion, Motion of satellites, Basic idea of Global Positioning System (GPS),Special theory of relativity, SHM
5. Group/Team Projects on: Motion of a rocket, Multistage rocket, Concept of impact parameter, Central forces, Kepler's laws of planetary motion-Proofs, Motion of satellites, Basic idea of Global Positioning System (GPS), weightlessness. Ultrasonics, General Properties of ultrasonic waves, Production of ultrasonics by piezoelectricand magnetostriction methods, Detection of ultrasonics

B. General

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
2. Group Discussions on:
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
4. Any similar activities with imaginative thinking.

12. Recommended Continuous Assessment methods:

B Sc	Semester: 2	Credits: 4
Course: 2	Wave Optics	Hrs/Wk: 4

Student able to Learning:

- Understand the nature of light and principles of Laser and holography.
- Analyse the intensity variation of light due to interference, diffraction and polarization.
- Solve problems in Optics by selecting the appropriate equations and performing numerical or analytical calculations.
- Student can able to operation of optical devices including polarizers, interferometers,and Lasers.

UNIT I: Interference of light: (12hrs)

Introduction, Conditions for interference of light, Interference of light by division of wave front and amplitude,Phase change on reflection- Stokes' treatment, Lloyd's single mirror, Interference in thin films: Plane parallel and wedge- shaped films, colours in thin films, Newton's rings in reflected light-Theory and experiment, Determination of wavelength of monochromatic light, Michelson interferometer anddetermination of wavelength.

UNIT II: Diffraction of light:(12hrs)

Introduction, Types of diffraction: Fresnel and Fraunhoffer diffractions, Distinction between Fresnel and Fraunhoffer diffraction,Fraunhoffer diffraction at a single slit, Plane diffraction grating,Determination of wavelength of light using diffraction grating, Resolving power of grating, Fresnel's half period zones, Explanation of rectilinear propagation of light, Zone plate, comparison of zone plate with convex lens.

UNIT III: Polarisation of light:(12hrs)

Polarized light: Methods of production of plane polarized light, Double refraction, Brewster's law, Malus law, Nicol prism, Nicol prism as polarizer and analyzer, Quarter wave plate, Half wave plate, Plane, Circularly and Elliptically polarized light-Production and detection, Optical activity, Laurent's half shade polarimeter: determination of specific rotation.

UNIT IV: Aberrations and Fibre Optics: (12hrs)

Monochromatic aberrations, Spherical aberration, Methods of minimizing spherical aberration, Coma, Astigmatism and Curvature of field, Distortion; Chromatic aberration-the achromatic doublet; Achromatism for two lenses (i) in contact and (ii) separated by a distance. **Fibre optics:** Introduction to Fibers, different types of fibers, rays and modes in an optical fiber, Principles of fiber communication (qualitative treatment only), Advantages of fiber optic communication.

UNIT V: Lasers and Holography:(12hrs)

Lasers: Introduction, Spontaneous emission, stimulated emission, Population Inversion, Laser principle, Einstein coefficients, Types of lasers-He-Ne laser, Ruby laser, Applications of lasers; Holography: Basic principle of holography, Applications of holography

REFERENCE BOOKS:

1. BSc Physics, Vol.2, Telugu Akademy, Hyderabad
2. A Text Book of Optics-N Subramanyam, L Brijlal, S.Chand& Co.
3. Optics-Murugeshan, S.Chand& Co.
4. Unified Physics Vol.IIOptics, Jai PrakashNath&Co.Ltd., Meerut
5. Optics,F.A. Jenkins and H.G.White, McGraw-Hill
6. Optics, AjoyGhatak,TataMcGraw-Hill.
7. Introduction of Lasers – Avadhanulu, S.Chand& Co.
8. Principles of Optics- BK Mathur, Gopala Printing Press, 1995

B Sc	Semester: 2	Credits: 1
Course: 2	Wave Optics Lab	Hrs/Wk: 2

Details of Lab/Practical/Experiments/Tutorials syllabus:

Minimum of 6 experiments to be done and recorded

1. Determination of radius of curvature of a given convex lens-Newton's rings.
2. Resolving power of grating.
3. Study of optical rotation –polarimeter.
4. Dispersive power of a prism.
5. Determination of wavelength of light using diffraction grating-minimum deviationmethod.
6. Determination of wavelength of light using diffraction grating-normal incidencemethod.
7. Resolving power of a telescope.
8. Refractive index of a liquid-hallow prism
9. Determination of thickness of a thin wire by wedge method
10. Determination of refractive index of liquid-Boy's method.
11. Determination of cauchy's constants (Using prisim A and B).

Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

C. Measurable:

5. Assignments on: Lloyd's single mirror, Interference in thin films: Plane parallel and wedge-shaped films, colours in thin films, Newton's rings in reflected light-Theory and experiment, Determination of wavelength of monochromatic light, Michelson interferometer and determination of wavelength. Distinction between Fresnel and Fraunhoffer diffraction,Fraunhoffer diffraction at a single slit, Plane diffraction grating,Determination of wavelength of light using diffraction grating, Zone plate, comparison of zone plate with convex lens. Brewster's law, Malus law, Nicol prism, Nicol prism as polarizer and analyzer, Quarter wave plate, Half wave plate, spherical aberration, Coma, Astigmatism and Curvature of field, Distortion; Chromatic aberration-the achromatic doublet; Achromatism for two lenses (i) in contact and (ii) separated by a distance. Laser principle, Einstein coefficients, Types of lasers-He-Ne laser, Ruby laser, Applications of lasers; Holography:

6. Student seminars (Individual presentation of Courses) on topics relating to:Intereference, Abberations, Opticalfiber communicaton, Holography, Diffraction,Polarization, Lasers.
7. Quiz Programmes on: Interference, Diffraction,Polarization, Optical fibers, Lasers, Abberations
8. Individual Field Studies/projects:
9. Group discussion on:Interefernce, Diffraction, Polarization
10. Group/Team Projects on: Lasers, Optical fibers

D. General

1. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
2. Group Discussions on:
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
4. Any similar activities with imaginative thinking.

Recommended Continuous Assessment methods:

B Sc	Semester: 3	Credits: 4
Course: 3	Heat and thermodynamics	Hrs/Wk: 4

Student able to Learning:

- Students will be able to Perform experiments and interpret the results of observation, including making an assessment of experimental uncertainties.
- They develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Physics.
- To apply the theories learnt and the skills acquired to solve real time problems
- To understand the concepts and significance of the various physical phenomena

UNIT I: Kinetic Theory of gases: (12 hrs)

Kinetic Theory of gases-Introduction, Maxwell's law of distribution of molecular velocities (qualitative treatment only) and its experimental verification,Mean free path, Degrees of freedom, Principle of equipartition of energy (Qualitative ideas only), Transport phenomenon in ideal gases: viscosity, Thermal conductivity and diffusion of gases.

UNIT II: Thermodynamics: (12hrs)

Introduction- Isothermal and Adiabatic processes, Reversible and irreversible processes, Carnot's engine and its efficiency, Carnot's theorem, Thermodynamic scale of temperature and its identity with perfect gas scale, Second law of thermodynamics: Kelvin's and Clausius statements, Principle of refrigeration, Entropy, Physical significance, Change in entropy in reversible and irreversible processes; Entropy and disorder-Entropy of Universe; Temperature-Entropy (T-S) diagram and its uses ; change of entropy when ice changes into steam.

UNIT III: Thermodynamic Potentials and Maxwell's equations: (12hrs)

Thermodynamic potentials-Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy and their significance, Derivation of Maxwell's thermodynamic relations from thermodynamic potentials, Applications to (i) Clausius-Clayperon's equation (ii) Value of CP-CV (iii) Value of CP/CV (iv) Joule-Kelvin coefficient for ideal gases.

UNIT IV: Low temperature Physics:(12hrs) Methods for producing very low temperatures, Joule Kelvin effect, Porous plug experiment ,Joule expansion, Distinction between adiabatic and Joule Thomson expansion, Expression for Joule Thomson cooling, Liquefaction of air by Linde's method, Production of low temperatures by adiabatic demagnetization (qualitative), Practical applications of substancesat low temperatures.

UNIT V: Quantum theory of radiation: (12 hrs) Blackbody and its spectral energy distribution of black body radiation, Kirchoff's law, Wein'sdisplacement law, Stefan-Boltzmann's law and Rayleigh-Jean's law (Noderivations), Planck's law of black body radiation-Derivation, Deduction of Wein's law and Rayleigh-Jean's law from Planck's law, Solar constant and its determination using Angstrompyroheliometer, Estimation of surface temperature of Sun.

Reference books:

1. BSc Physics, Vol.2, Telugu Akademy, Hyderabad
2. Thermodynamics, R.C.Srivastava, S.K.Saha&AbhayK.Jain, Eastern Economy Edition.
3. Unified Physics Vol.2, Optics & Thermodynamics, Jai PrakashNath&Co.Ltd., Meerut
4. Fundamentals of Physics. Halliday/Resnick/Walker.C. Wiley India Edition 2007
5. Heat and Thermodynamics -N BrijLal, P Subrahmanyam, S.Chand& Co.,2012
6. Heat and Thermodynamics- MS Yadav, Anmol Publications Pvt. Ltd, 2000
7. University Physics, HD Young, MW Zemansky,FW Sears, Narosa Publishers, New Delhi

B Sc	Semester: 3	Credits: 1
Course: 3	Heat and thermodynamics Lab	Hrs/Wk: 2

Details of Lab/Practical/Experiments/Tutorials syllabus:

Minimum of 6 experiments to be done and recorded

1. Specific heat of a liquid –Joule's calorimeter –Barton's radiation correction
2. Thermal conductivity of bad conductor-Lee's method
3. Thermal conductivity of rubber.
4. Measurement of Stefan's constant.
5. Specific heat of a liquid by applying Newton's law of cooling correction.
6. Heating efficiency of electrical kettle with varying voltages.
7. Thermoemf- thermo couple - Potentiometer
8. Thermal behavior of an electric bulb (filament/torch light bulb)
9. Measurement of Stefan's constant- emissive method
10. Study of variation of resistance with temperature - Thermistor.
11. Calculation of temperature coefficient of given material using Carry Fosters bridge.

9. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

E. Measurable:

Assignments on: Maxwell's law of distribution of molecular velocities, Transport phenomenon in ideal gases: viscosity, Thermal conductivity and diffusion of gases. Introduction- Isothermal and Adiabatic processes, Reversible and irreversible processes, Carnot's engine and its efficiency, Carnot's theorem, Thermodynamic scale of temperature, Thermodynamic potentials-Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy and their significance, Derivation of Maxwell's thermodynamic relations fromthermodynamic potentials, Joule Kelvin effect, Porous plug experiment ,Joule expansion, Distinction between adiabatic and Joule Thomson expansion, Expression forJoule Thomson cooling, Liquefaction of air by Linde's method, Production of lowtemperatures by adiabatic demagnetization

10. Student seminars (Individual presentation of Courses) on topics relating to: Kinetic Theory of Gases, Carnots Engine and its efficiency, Carnot Theorem, Entropy, Maxwell Thermodynamic Equations, Joule Kelvin effect, Production of low temperatures, Plank Radiation law, Weins law,Pyrometers,
11. Quiz Programmes on: Kinetic theory of gases, Heat and Temperature entropy, Isothermal and Adiabatic process,Thermodynamic Potentials, Low temperature Physics , Thermal Radiation.
12. Individual Field Studies/projects: Carnots Engine, Pyrometers, Adaibatic demagnetization, Porus plug experiment. Liquification of gases.
13. Group discussion on:Kinetic theory of gases, Quantum theory of Radiation, Low temperature physics and thermodynamic potentials,
14. Group/Team Projects on: Carnots Engine, Pyrometers, Adaibatic demagnetization, Porus plug experiment. Liquification of gases.

F. General

5. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
6. Group Discussions on:
7. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
8. Any similar activities with imaginative thinking.

Recommended Continuous Assessment methods:

B Sc	Semester: 4	Credits: 4
Course: 4	Electricity, Magnetism & Electronics	Hrs/Wk: 4

Student Able learn:

- To learn about Gauss law and solve the electric field and magnetic field for various geometric objects and to learn basic electronic concepts in analog and digital theory.
- To be Explain all the topics of Experiments, Concepts and Derivations to the student
- Apply the principles of electronics in day to day life.
- Encourage all the students to study higher educational courses in reputed institutes and to enrich the students with creative, logical and analytical skills and to motivate the students towards research side

UNIT I:

Electrostatics: (6hrs) : Gauss's law-Statement and its proof, Electric field intensity due to (i) uniformly charged solid sphere and (ii) an infinite conducting sheet of charge, Deduction of Coulomb's law from Gauss law, Electrical potential–Equipotential surfaces, Potential due to a uniformly charged sphere.

Dielectrics: (6 hrs): Dielectrics-Polar and Non-polar dielectrics- Effect of electric field on dielectrics,Dielectric strength, Capacitance of a parallel plate condenser with dielectric slab between the plates, Electric displacement D, electric polarization P,Relation between D, E and P, Dielectric constant and electric susceptibility.

UNIT II:

Magnetostatics: (6 hrs): Biot-Savart's law and its applications: (i) circular loop and (ii) solenoid, Ampere's Circuital Law and its application to Solenoid, Hall effect, determination of Hall coefficient and applications.

Electromagnetic Induction: (6 hrs): Faraday's laws of electromagnetic induction, Lenz's law, Self induction and Mutual induction,Self inductance of a long solenoid, Mutual inductance of two coils, Energy stored in magnetic field, Eddy currents.

UNIT III:

Alternating currents: (6 hrs): Alternating current - Relation between current and voltage in L,C, R, LR and CR circuits, Phasor and Vector diagrams, LCR series and parallel resonant circuit, Q – factor, Power factor.

Electromagnetic waves-Maxwell's equations:(6 hrs) : Idea of displacement current,Maxwell's equations-Derivation, Maxwell's wave equation (with derivation), Transverse nature of electromagnetic waves, Poynting theorem (Statement andproof). Velocity of wave equation using maxwells relations in vaccume.

UNIT IV:

Basic Electronic devices: (12 hrs): PN junction diode, Zenerdiode andLight Emitting Diode (LED) and their I-V characteristics, Zener diode as a regulator- Transistors and its operation, CB, CE and CC configurations, Input and output characteristicsofa transistor in CE mode, Relation between alpha, beta and gamma; Transistor as an amplifier.

UNIT-V:

Digital Electronics: (12 hrs): Number systems, Conversion of binary to decimal system and vice versa, Binary addition & Binary subtraction (1's and 2's complement methods), Laws of Boolean algebra, DeMorgan's laws-Statements and Proofs, Basic logic gates, NAND and NOR as universal gates, Exclusive-OR gate, Half adder and Full adder circuits.

REFERENCE BOOKS

1. BSc Physics, Vol.3, Telugu Akademy, Hyderabad.
2. Electricity and Magnetism, D.N. Vasudeva. S. Chand & Co.
3. Electricity and Magnetism, B.D.Duggal and C.L.Chhabra. Shobanlal& Co.
4. Electricity, Magnetism with Electronics, K.K.Tewari, R.Chand& Co.,
5. Electricity and Magnetism, R.Murugeshan, S. Chand & Co.
6. Principles of Electronics, V.K. Mehta, S.Chand& Co.,
7. Digital Principles and Applications, A.P. Malvino and D.P.Leach, McGrawHill Edition.

B Sc	Semester: 4	Credits: 1
Course: 4	Electricity, Magnetism & Electronics Lab	Hrs/Wk: 2

Details of Lab/Practical/Experiments/Tutorials syllabus:

Minimum of 6 experiments to be done and recorded

1. Figure of merit of a moving coil galvanometer.
2. LCR circuit series/parallel resonance, Q factor.
3. Determination of ac-frequency –Sonometer.
4. Verification of Kirchoff's laws and Maximum Power Transfer theorem.
5. Field along the axis of a circular coil carrying current-Stewart & Gee's apparatus.
6. PN Junction Diode Characteristics
7. Zener Diode –V-I Characteristics
8. Zener Diode as a voltage regulator
9. Transistor CE Characteristics- Determination of hybrid parameters
10. Logic Gates- OR,AND,NOT and NAND gates. Verification of Truth Tables.
11. Verification of De Morgan's Theorems.
12. Construction of Half adder and Full adders-Verification of truth tables
13. Universal gates construction and verification of truth tables.

Recommended Reference books:

14. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

G. Measurable:

1. **Assignments on**: Gauss's law-Statement and its proof, Electric field intensity due to uniformly charged solidsphere and Potential due to a uniformly charged sphere.
2. **Student seminars (Individual presentation of Courses) on topics relating to**:
3. Biot-Savart's law and its applications: (i) circular loop and (ii) solenoid, Ampere's Circuital Law and its application to Solenoid, Hall effect, determination of Hall coefficient and applications
4. **Quiz Programmes on**: PN junction diode, Zenerdiode andLight Emitting Diode (LED) and their I-V characteristics, Zener diode as a regulator- Transistors and its operation, CB, CE and CC configurations
5. **Individual Field Studies/projects**: Maxwell's equations-Derivation, Maxwell's wave equation (with derivation), Transverse nature of electromagnetic waves, Poynting theorem (Statement andproof)
6. **Group discussion on:** Number systems, Conversion of binary to decimal system and vice versa, Binary addition & Binary subtraction (1's and 2's complement methods), Laws of Boolean algebra
7. **Group/Team Projects on**: Alternating current - Relation between current and voltage in L,C, R, LR and CR circuits, Phasor and Vector diagrams, LCR series and parallel resonant circuit, Q –factor, Power factor.

H. General

8. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
9. Group Discussions on:
10. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
11. Any similar activities with imaginative thinking.

Recommended Continuous Assessment methods:

B Sc	Semester: 4	Credits: 4
Course: 5	Modern Physics	Hrs/Wk: 4

Student able learn:

- To Create awareness on the topics of Atomic & Molecular Physics, Quantum mechanics, Nuclear Physics, and Solid state physics.
- To be Explain all the topics of Experiments, Concepts and Derivations to the student.
- Explain the basic principles of quantum mechanics and apply to Atomic, Molecular structure of energy levels etc..
- Motivate all the students to pursue PG courses in reputed institutes and to endow the students with creative and analytical skills; this will equip them to become entrepreneurs.

UNIT I :

Atomic and Molecular Physics:(12 hrs): Vector atom model and Stern-Gerlach experiment, Quantum numbers associated with it,Angular momentum of the atom, Coupling schemes, Spectral terms and spectral notations, Selection rules, Intensity rules, Fine structure of Sodium D-lines, Zeeman effect, Experimentalarrangement to study Zeeman effect; Raman effect, Characteristics of Raman effect. Experimental arrangement to study Raman effect, Quantum theory of Raman effect, Applications of Raman effect.

UNIT II:

Matter waves &Uncertainty Principle:(12 hrs): Matter waves, de Broglie's hypothesis, Wave length of matter waves, Properties of matter waves, Davisson and Germer's experiment, Phase and group velocities, Heisenberg's uncertainty principle for position and momentum& energy and time, Illustration of uncertainty principle using diffraction of beam of electrons and photons (Gamma ray microscope),Bohr's principle of complementarity.

UNIT III:

Quantum (Wave) Mechanics:(12 hrs): Basic postulates of quantum mechanics, Schrodinger time independent and time dependent wave equations-Derivations, Physical interpretation of wave function, Eigen functions, Eigen values, Application of Schrodinger wave equation to (i) one dimensional potential box of infinite height(InfinitePotential Well) and (ii) three dimensional box - tunneling effect.

UNIT IV:

Nuclear Physics:(12 hrs): *Nuclear Structure*: General Properties of Nuclei, Mass defect, Binding energy; *Nuclear forces*:Characteristics of nuclear forces- Yukawa's meson theory; *Nuclear Models*: Liquid drop model, The Shell model, Magic numbers; *Nuclear Radiation detectors*: G.M. Counter, Cloud chamber, Solid State detector; *Elementary Particles*: Elementary Particles and their classification.

UNIT-V:

Nano materials:(7hrs): Nanomaterials – Introduction, Electron confinement, Size effect, Surface to volume ratio, Classification of nano materials– (0D, 1D, 2D); Quantum dots, Nano wires, Fullerene, CNT, Graphene(Mention of structures and properties),Distinct properties of nano materials (Mention-*mechanical,optical, electrical, and magnetic properties*); Mention of applications of nano materials: (*Fuel cells,Phosphors for HD TV).*

Superconductivity: (5 hrs): Introduction to Superconductivity, Experimental results-critical temperature, critical magnetic field, Meissner effect , Isotope effect,Type I and Type II superconductors, BCS theory (elementary ideas only),Applications of superconductors

REFERENCE BOOKS

1. BSc Physics, Vol.4, Telugu Akademy, Hyderabad
2. Atomic Physics by J.B. Rajam; S.Chand& Co.,
3. Modern Physics by R. Murugeshan and Kiruthiga Siva Prasath. S. Chand & Co.
4. Concepts of Modern Physics by Arthur Beiser. Tata McGraw-Hill Edition.
5. Nuclear Physics, D.C.Tayal, Himalaya Publishing House.
6. S.K. Kulkarni, Nanotechnology: Principles & Practices (Capital Publ.Co.)
7. K.K.Chattopadhyay&A.N.Banerjee, Introd.to Nanoscience and Technology(PHI LearningPriv.Limited).
8. Nano materials, A K Bandopadhyay. New Age International Pvt Ltd (2007)
9. Textbook of Nanoscience and Nanotechnology, BS Murthy, P Shankar, BaldevRaj,BB Rath and J Murday-Universities Press-IIM

B Sc	Semester: 4	Credits: 4
Course: 5	Modern Physics Lab	Hrs/Wk: 4

Details of Lab/Practical/Experiments/Tutorials syllabus:

Minimum of 6 experiments to be done and recorded

1. e/m of an electron by Thomson method.
2. Determination of Planck's Constant (photocell).
3. Verification of inverse square law of light using photovoltaic cell.
4. Determination of the Planck's constant using LEDs of at least 4 different colours.
5. Determination of work function of material of filament of directly heated vacuumdiode.
6. Study of absorption of α-rays.
7. Study of absorption of β-rays.
8. Determination of Range of β-particles.
9. Determination of M & H.
10. Analysis of powder X-ray diffraction pattern to determine properties of crystals.
11. Energy gap of a semiconductor using junction diode.
12. Energy gap of a semiconductor using thermistor
13. GM counter characteristics
14. Study of photo cell characteristics.

Recommended Reference books:

9. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

I. Measurable:

Assignments on: Stern-Gerlach experiment, Quantum numbers associated with it, Angular momentum of the atom, Coupling schemes, Experimental arrangement to study Zeeman effect; Raman effect, Characteristics of Raman effect. Experimental arrangement to study Raman effect, Applications of Raman effect, Wave length of matter waves,; *Nuclear Radiation detectors*: G.M. Counter, Cloud chamber, Solid State detector, Classification of nano materials– (0D, 1D, 2D); Quantum dots, Nano wires, Fullerene, CNT, Graphene(Mention of structures and properties),

Student seminars (Individual presentation of Courses) on topics relating to: Stern-Gerlach experiment, Zeeman effect, Raman effect. Davisson and Germer's experiment, , Heisenberg's uncertainty principle Schrodinger time independent and time dependent wave equations-Derivations, , The Shell model, Magic numbers;,

8. **Quiz Programmes on**: Zeeman effect, Matter waves, de Broglie's hypothesis, Heisenberg's uncertainty principle for position and momentum& energy and time, Schrodinger time independent and time dependent wave equations-Derivations.
9. **Individual Field Studies/projects**: *Nuclear Radiation detectors*: G.M. Counter, Cloud chamber, Solid State detector, Liquid drop model, Distinct properties of nano materials
10. **.Group discussion on:** Properties of matter waves, Davisson and Germer's experiment, Eigen functions, Eigen values, Application of Schrodinger wave equation to (i) one dimensional potential box of infinite height(InfinitePotential Well), Liquid drop model, The Shell model, Magic numbers
11. **Group/Team Projects on**: Basic postulates of quantum mechanics, Schrodinger time independent and time dependent wave equations-Derivations, Physical interpretation of wave function

J. General

12. Collection of news reports and maintaining a record of Course-cuttings relating to topics covered in syllabus
13. Group Discussions on:
14. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
15. Any similar activities with imaginative thinking.

Recommended Continuous Assessment methods:

(MODEL-PAPER-SEMESTER END EXAMINATION)

UG: DEGREE EXAMINATIONS

SEMESTER-(I)

COURSE-(1)-MECHANICS,WAVES AND OSCILLATIONS

3 Hours Max Marks : 75

SECTION-A

ANSWER ANY FIVE QUESTIONS **5 X 5 -25M**

I.Explain the terms

1) impact parameters

అభిఘాత పరామితి

2)Write a short note on Gyroscope

గైరోస్కోప్‌ను వివరించుము

3)Show the conservative nature of central forces

కేంద్రీయ బలాల యొక్క నిత్యత్వమును చూపుము

4)Give brief idea about GPS

జి.పి.యస్ గురించి క్లుప్తంగా వ్రాయుము

5)If a Rod travels with a speed with V=0.6c along its length , calculate the percentage of contraction

0.6 వేగముతో చలించుచున్న కడ్డీ యొక్క సంకుచితత్వము యొక్క శాతమును కనుగొనుము

6)What is the fundamental frequency of piezo-electric crystal if $y = 8*10^8\ pa, p = 2.5*10^3\ kg/m^3$ and vibrating length is $3X10^{-3}$

పైజో స్ఫటికము యొక్క ప్రాధమిక పౌన:పున్యమును కనుగొనుము

7)Find the fundamental frequency of longitudinal wave in rod of 1m length fixed at the mid point with both the ends being free .given the velocity of the sound in the bar V=3000m/s and the density of the material of the bar p=8600kg/m^3

మధ్యన బిగించబడిన 1మీటర్ కడ్డీలోని అనుదైర్ఘ్య తరంగ ప్రాధమిక పౌన:పున్యమును కనుగొనుముకడ్డీలో ధ్వని వేగము V=3000m/s కడ్డీ లోహ సాంద్రత p=8600kg/m^3

8) Write five applications of Ultrasonic

అతిధ్వనుల యొక్క అనువర్తనాలను ఐదు వ్రాయుము

Section – B

Answer all questions. 5 x 10 = 50M

9. a)Explain the principle of motion of a rocket and derive for its velocity at any instant when it is moving under constant gravitational field

రాకెట్ గమన నియమమును వివరించుము.స్థిర గురుత్వాకర్షణ కక్షలో తిరుగుతున్నప్పుడు ఏదైనా ఒక సమయంలో దాని వేగమును రాబట్టుము

OR

b)Derive Euler equations.

యూలర్ సూత్రమును రాబట్టుము

10) a)Define Central forces and show that they are conservative in nature.

కేంద్రీయ బలాలను వివరించి వాటి నిత్యత్వంను నిరూపించుము

OR

b)State and prove Kepler's laws of planetary motion.

కెప్లర్ గ్రహ నియమాలను వ్రాసి మరియు నిరూపించుము

11). a)Describe Michelsons- morleys experiment. Explain negative result.

మైకేల్సన్ – మోర్లే ప్రయోగమును వివరించి, ఋణ ఫలితములను వివరించుము

OR

b)Explain Einsteins mass energy relation.

ఐన్‌స్టీన్ యొక్క ద్రవ్యరాశి –శక్తి నియమాన్ని వివరించుము

12). a)Solve the differential equation of damped Harmonic Oscillator and discuss the critical damping.

సందిగ్ధ తీగలో విరుద్ధ దోలనాల అవకలన సమీకరణమును సాధించుము

OR

b)Discuss about two coupled oscillator and derive expression for normal modes.

ద్వంద్వ యుగ్మత దోలనాల సమీకరణమును సాధించుము

13 a)Derive an equation for the propagation of transvers waves along string. Discuss the case of string clamped at both ends.

సాగతీయబడిన తీగలో తిర్యక్ తరంగ సమీకరణమును రాబట్టుము. ఇరువైపలా బిగించబడ్డ తీగలోని కంపనాలను వివరించుము

OR

b)Explain the production of Ultrsonics using Piezo electric method.

పైజో విద్యుత్ వద్ధతి ద్వారా అతి ధ్వనులు ఉత్పాదనమును వివరించుము

(MODEL-PAPER-SEMESTER END EXAMINATION)

UG DEGREE EXAMINATIONS

SEMESTER-(II)

COURSE-(2)-OPTICS

TIME:3Hrs **Max Marks :75**

Section – A

Answer any **FIVE** questions. 5 x 5M = 25M

1. Explain the defects coma and astigmatism in a lens. How are they minimized?

   బిందు విస్తరణ మరియు కేంద్రక ఆవరణ వివరింపుము. వాటిని ఏ విధంగా తొలగించవచ్చును.

2. Distinguish between Fresnel and Fraunhoffer diffractions.

   ఫ్రెనల్ మరియు ఫ్రాన్ హెఫర్ వివర్తనముల వ్యత్యాసము వ్రాయుము.

3. What are quarter and half wave plates?

   అర్ధతరంగ మరియు క్వార్టను తరంగ పలక వివరింపుము.

4 What is holography? Mention its uses.

   హెలోగ్రఫీ అనగా నేమి. దాని ఉపయోగాలు వ్రాయుము.

5. A double convex lens has radii of 40 cm and 10 cm. If the refractive indices for violet and red colours are 1.52 and 1.51 respectively, what is the longitudinal chromatic aberration for an object at infinity?

   ద్వంద కుంభాకార కటకము యొక్క వ్యాసార్ధాలు 10 సెమ్ 40 సెమ్ ఎరుపు మరియు ఉదారంగుల వక్రీభవన గుణకములు 1.52 మరియు 1.51. వస్తువు అనంతదూరంలో ఉన్నప్పుడు అనుధైర్ఘ్య వర్ణ విపదనము కనుగొనుము.

6. A lens of thickness of 2cm and refractive index 1.5 placed in air has radii of curvature 8 cm and 8 cm. Find the system matrix and focal length.

   2 సెమ్ మందము 1.5 వక్రీభవన గుణకము గల కటకము గాలిలో ఉన్నప్పుడు దాని వక్రతల వ్యాసార్ధము 8. సెమ్ నాభ్యాంతరము మరియు మాత్రికను కనుగొనుము.

7 A 15 cm tube containing cane sugar solution shows optical rotation 7^0. Calculate the strength of the solution.

   2 చెక్కర ద్రామణము 15 సెమ్ గొట్టంలో దృశ్య భ్రమణము 7^0 చూపగా ఆ ద్రావణము యొక్క సామర్థ్యమును లెక్కించుము.

.8. In Newton's rings arrangement the radius of curvature of the curved surfaces is 50 cm. The radii of the 9^{th} and 16^{th} dark rings are 0.18 cm and 0.2235 cm. Calculate the wave length of the source of light.

   లెన్యూటన్ వలయాల ప్రయోగంలో 9 మరియు 16వ చీకటి వలయాల వ్యాసార్ధలు 0.18 cm and 0.2235 cm.వక్రతల వ్యాసార్ధము 50 cm అయినచోకాంతి యొక్క తరంగదైర్ఘ్యము లెక్కించుము.

SECTION-B

Answer all questions. 5 x 10 M= 50M

9. a.What is chromatic aberration? Obtain an expression for the chromatic aberration of a lens.

వర్ణ విపదనము అనగా నేమి? ఒక కటకము యొక్క వర్ణవిపదనము యొక్క

సమీకరణమును సాధించుము?

OR

b.Explain spherical aberration. Describe minimization techniques.

గోళీయ విపదనము అనగా నేమి. దానిని ఎట్లు నివారించవచ్చును.

10. a.How are Newton's rings formed? Describe Newton's rings experiment to determine the wave length of a monochromatic light with necessary theory.

న్యూటన్ వలయాల ఎలా ఏర్పడతాయి. ఏకవర్ణకాంతి తరంగధైర్యాన్ని న్యూటన్ వలయాల ద్వారా ఎలా కనుగొందువు.

OR

b.Explain how to determine thickness of given thin wire by forming wedge shaped film.

వెడ్జ్ విధానము అనుసరించి, ఇచ్చిన తీగ మందమును ఎలా కనుగొందువు.

11. a.What is a zone plate? Describe its action. Explain how a zone plate acts like a convergent lens having multiple foci.

మండల ఫలకము అనగా నేమి. దాని క్రియను వివరించి మండల ఫలకము అనేక న్యాభ్యాంతరము కల కుంభాకార కటకము వలె పనిచేయునని చూపుము.

b.Explain diffraction of light due to single slit.

ఏకరీతి చీలిక వల్ల ఏర్పడు వివర్తనమును వివరింపుము.

12. a.Describe the construction and working of a Nicol prism. Give any method of producing plane polarized light.

నికాల్ పట్టక నిర్మాణమును మరియు పనిచేయు విధానమును వివరింపము. ఏకరీతి ద్రవిత కాంతిని పొందు ఒక విధానమును వివరింపుము.

OR

b.Define optical activity. Describe how the specific rotation of given optically active substance using laurant's half schade polarimeter.

ధ్రువణ తల భ్రమణము అనగా నేమి. లారెంట్ అర్ధఛాయ ధ్రువణ మాపకము ద్వారా భ్రామకమును ఎలా కనుగొందువు.

13. a.Explain construction and working of He-Ne laser.

హీలియం-నియాన్ లేజరు యొక్క నిర్మాణము మరియు పనిచేయు విధానము వివరింపుము

(MODEL-PAPER-SEMESTER END EXAMINATION)

UG: DEGREE EXAMINATIONS

SEMESTER-(III)

COURSE-(3)-THERMODYNAMICS

TIME:3Hrs **MaxMarks :75**

Section –A

Answer any **five**questions. 5 x 5M = 25M

1. Derive an expression for the coefficient of viscosity of a gas on the basis of kinetic theory of gases.

వాయుస్నిగ్ధతాగుణకమును అణుచలన సిద్ధాంతం ద్వారా రాబట్టుము

2. What are pyrometers? Describe disappearing filament optical pyrometer.

మాయమైపోయే తీగ దృశా పైరోమీటర్ నిర్మాణమును వివరించుము

3. State and prove carnot's theorem

కార్నాట్ సిద్ధాంతంను వ్రాసి వివరించుము

4. Obtain clausius- clapeyron equation from Maxwell's equations

మాక్స్‌వెల్ సమీకరణం ద్వారా క్లాసియస్–క్లాపిరాన్ సమీకరణమును ఉత్పాదించుము

5. Discuss the effects of Chloro and fluoro carbons on ozone layer

ఓజోన్ పొర మీద క్లోరో–ఫ్లోరో కార్బన్‌ల యొక్క చర్య వివరించుము

6. What is Entropy. And explain how it changes in a reversible process .

ఎంట్రోపిని వివరింపుము.ఉత్క్రమణీయ ప్రక్రియలో దాని మార్పును వివరించుము

7. The efficiency of a Cornot's engine is 60%. Calculate the increase in temperature of the source so that the efficiency becomes 70%.

కార్నోఇంజను యొక్క సామర్థ్యం 60%. దాని సామర్థ్యం 70%. ఆయితే ఉష్ణఉత్పాదక లోని ఉష్ణోగ్రత పెరుగుదల ఎంత

8.Calculate the surface temperature of the Sun, given the radius of the Sun = 7.04×10^5 Km, distance of the Sun from the earth = 14.72×10^7 Km, solar constant = 1400 W/m^2 and Stefan's constant = 5.7×10^{-8} $Wm^{-2}K^{-4}$.

సూర్యుని ఉపరితల ఉష్ణోగ్రతను లెక్కించుము.సూర్యుని వ్యాసార్ధం 7.04×10^5 Km భూమినుండి సూర్యునికి గల దూరం14.72×10^7 Km సౌర స్థిరాంకం 1400 W/m^2 మరియు స్థెఫాన్ స్థిరాంకం5.7×10^{-8} $Wm^{-2}K^{-4}$

Section - B

Answer all questions. 5x 10M = 50M

9. a.Derive Maxwell's distribution law of velocities.

మాక్స్‌వెల్ వేగ వితరణ సూత్రాన్ని రాబట్టుము

OR

b. Define coefficient of viscosity and thermal conductivity and derive the relation between them using Kinetic theory of gasses.

స్నిగ్ధితాగుణకము మరియు ఉష్ణవాహకత్వముయు నిర్వహించి వాటి మధ్య సంబంధమును వాయు అణు చలన సిద్ధాంతం ద్వారా రాబట్టుము

10. a.Derive Plank's law of radiation. Derive an expression for energy distribution?

ప్లాంక్ వికిరణ సూత్రాన్ని రాబట్టుము, శక్తి వితరణ సూత్రాన్ని వివరింపుము

OR

b. Explain the construction and working of PyroHelio meter.

పైరోహీలియో మీటర్ యొక్క నిర్మాణము మరియు పనితనము వ్రాయుము

11. a.Describe the working of Cornot's engine and derive the expression for its efficiency.

కార్నో ఇంజను పనితనము మరియు దాని సామర్థ్యమును ఉత్పాదించుము

OR

b. Explain T-S diagram and derive expression for effiency.

T-Sపటమును వివరించి దాని సామర్థ్యమును ఉత్పాదించుము

12. a.What are thermodynamic potentials? Derive Maxwell's thermodynamic relations.

ఉష్ణగతిక శక్మాలను నిర్వచించుము, తద్వారా మాక్స్‌వెల్ ఉష్ణగతిక సమీకరణాన్ని రాబట్టండి

OR

b. Define Joule Thomson effect and derive and expression for cooling.

జౌల్ –థామ్స్‌న్ ఫలితమును వివరించుము.జౌల్ –థామ్స్‌న్ శీతలీకరణానికి సమీకరణాన్ని రాబట్టండి

13. a.Describe how low temperatures are produced by adiabatic demagnetization. Give the theory of the experiment.

స్థిరోష్ణక నిరయస్కాంతీకరణం ద్వారా అల్పఉష్ణోగ్రతలను ఏ విధంగా పొందవచ్చునో వివరించుము

OR

b. Explain the liquification of air by Linde's methode.

లిండే పద్ధతి ద్వారా వాయుద్రవీకరణము వివరింపుము

(MODEL-PAPER-SEMESTER END EXAMINATION)
UG: DEGREE EXAMINATIONS
SEMESTER-(IV)
COURSE-(4)-ELECTRICITY MAGNETISM AND ELECTRONICS

TIME:3Hrs **Max Marks :75**

Section – A

Answer any FIVE Questions **5X5 =25M**

1. Derive expression for the potential due to a point charge.

బిందు ఆవేశము వలన కలిగే పొటెన్షియల్‌ను ఉత్పాదించుము?

2. What is Hall Effect? Write the applications of Hall Effect.

హాల్ ఫలితము అనగా నేమి. దాని అనువర్తనాలను వ్రాయుము.

3. Write the integral and differential forms of Maxwell's equations.

మాక్స్‌వెల్ నియమాల ఇంటిగ్రల్ మరియు సంకలన రూపములు వ్రాయుము?

4. Derive the relation among D, E and P.

డి.ఇ.పి మధ్య గల సంబంధము వ్రాయుము?

5. Calculate the resonance frequency of a LCR series circuit with a resistance 10&!, inductance 20mH and a capacitance of 0.02μF.

ఎల్ సి.ఆర్ వలయం యొక్క అనునాద పౌనపున్యమును కనుగొనుము నిరోదము వోమ్ 10!, ఇండక్టన్స్ 20mH c= 0.02μF.

6. For a transistor $\alpha = 0.95$ and its emitter current is 1mA. Find its base and collector currents.

ట్రాన్సిస్టర్ యొక్క $\alpha = 0.95$ మరియు ఉద్గార విద్యుత్ 1mA అయితే ఆధార మరియు కలక్టర్ విద్యుత్ విలువ ఎంత?

7. Convert the following binary numbers into equivalent decimal number

i. 101010101 ii. 1111001

ఈ క్రింది ద్వి సంఖ్య మానంలోని సంఖ్యలను దశాంశ సంఖ్యలుగా వ్రాయుము?

i. 101010101 ii. 1111001

8. Perform the following subtraction using 2's compliment method

i. 101101 – 011110 ii. 11110111 – 00001100

ఈ క్రింది వ్యత్యాసములను 2' కాంప్లిమెంట్ పద్ధతి ద్వారా కనుగొనుము.

i. 101101 – 011110 ii. 11110111 – 00001100

SECTION-B

Answer all questions **5 X 10-50 M**

9. (a) State and prove Gauss's law.

గాస్ నియమమును వ్రాసి నిరూపించుము?

(or)

(b) Derive expression for the capacitance of parallel plate capacitor with dielectric slab

సమాంతర పలకల మధ్య రోదకమును ఉంచినప్పుడు కెపాసిటన్సి ని ఉత్పాదించుము?

10 (a) State and explain Biot - Savart's law. Derive an expression for the magic induction at a point on the axis of a current carrying solenoid.

బయోడ్-సావర్ట్ నియమమును వివరించుము? సాలినాయిడ్ లో విద్యుత్ ప్రవహిస్తున్నట్లు దాని అక్షం మీద వున్న బిందువు వద్ద అయిస్కాంత తీవ్రతను కనుగొనుము.

(or)

(b) Explain Faraday's laws of electromagnetic induction. Derive expression for coefficient of coupling.

ఫారడే విద్యుత్ అయిస్కాంత నియమమును వ్రాయుము? కప్లింగ్ గుణకాన్ని ఉత్పాదించుము.

11. (a) Describe the behavior of series LCR circuit when an alternating voltage is applied to it. Explain the condition for resonance.

ఎల్‌సిఆర్. వలయానికి ఎ.సి. వోల్టేజి ఇచ్చినపుడు దాని ప్రవర్తన వ్రాయుము? మరియు అనువాద నియమమును వివరించుము?

(or)

(b) Derive the equation of electromagnetic wave and hence determine the velocity of propagation of electromagnetic wave in free space.

విద్యుత్ అయిస్కాంత తరంగ సమీకరణమును ఉత్పాదించుము? తరంగ ప్రవాహ వేగమును రాబట్టుము.

12. (a) What is transistor? Explain the working of PNP and NPN Transistor.

పి.ఎన్.పి మరియు ఎన్.పి.ఎన్ ట్రాన్సిష్టర్ యొక్క పనితనము వివరింపుము?

(or)

(b) Deduce relation between alpha, beta and gamma.

ఆల్ఫా, బీటా, మరియు గామా ల మధ్య సంబంధము వ్రాయుము.

13. (a) Explain the functioning of a Half Adder and a Full Adder along with respective truth tables.

అర్ధ సంకలన కారిణి (హాఫ్ యాడర్) మరియు పుల్ యాడర్‌ల యొక్క నిజ పట్టీల ద్వారా వీటి యొక్క పనితనము వివరింపుము?

(or)

(b) State and prove Demorgan's laws. Realize AND, OR and NOT gates from NAND logic.

డీ- మార్గన్ సిద్ధాంతమును నిర్వచించి నిరూపింపుము? ఎన్ఎఎన్‌డి ద్వారము ద్వారా అండ్, ఒఆర్, నాట్ ద్వారాలను రాబట్టుము.

(MODEL-PAPER-SEMESTER END EXAMINATION)

UG: DEGREE EXAMINATIONS

SEMESTER-(IV)

COURSE-(5)MODERN PHYSICS

TIME:3Hrs **Max Marks :75**

Section – A

Answer any **FIVE** Questions 5X5 =25M

1. Explain L-S and J-J coupling schemes.

L-S మరియు J-J కప్లింగ్ పద్ధతులను వివరించండి.

2.State and explain Zeeman effect.

జీమన్ ఫలితాన్ని వివరించండి?

3 How inter nuclear distance in a molecule can be determined

న్యూక్లియర్ అంతర్గత దూరం ఏ విధంగా కనుగొనవచ్చను.

4. Define Binding energy of nucleus. Calculate binding energy of nucleus.

కేంద్రక బంధన శక్తిని వివరింపుము. దానిని ఏ విధంగా లెక్కగడతారో తెలుపుము

5. What are properties of nuclear forces.

కేంద్రకబలాల దర్మాలను తెలుపుము.

6. Write about Geiger-Nuttal law

గైగర్ ... నట్టల్ నియమాన్ని వివరించండి.

7. Briefly explain the principle of solid state detector.

సలాడ్ స్టేట్ డిటెక్టర్ పనిచేయు విధానాన్ని వివరించండి?

8. The mass of $_{17}Cl^{35}$ is 34.98 a.m.u. Find the binding energy per nucleon. Mass of neutron is 1.008665 a.m.u and mass of proton is 1.007665 a.m.u.

$_{17}Cl^{35}$ యొక్క ద్రవ్యరాశి 34.98 a.m.u. న్యూట్రాన్ ద్రవ్యరాశి 1.008665 a.m.u మరియు ప్రోటాన్ ద్రవ్యరాశి 1.007665 a.m.u. బంధన శక్తి ప్రతి న్యూక్లియాన్ ను కనుగొనుము.

Section – B

Answer **all** questions. 5 x 10 = 50 m.

9. a. Describe the Stern Gerlach experiment and indicate the importance of the results obtained.

స్టెర్న్ గెర్లాక్ ప్రయోగమును వివరించి ప్రాధాన్యతను తెలుపండి?

OR

b. Explain Raman effect. Describe experimental arrangement to observe Raman effect.

రామన్ ప్రయోగ ఫలితాన్ని ప్రయోగ పూర్వకంగా వివరించండి?

10. a. Describe Davision and Germer Experiment.

డెవిసన్ మరియు జర్మర్ ప్రయోగాన్ని తెలుపండి?

OR

b. Describe Heisenbergs Uncertanity relation. Derive Energy – time uncertainty.

ఐసెన్ బర్గ్ అనిశ్చిత సూత్రాన్ని వివరించి శక్తి, కాలముల అనిశ్చిత సూత్రాన్ని నిరూపించండి?

11 a.Derive an expression for energy levels of particle in box which is 3-D motion.

పెట్టెలో 3-D చలనం కలిగిన కణం యొక్క శక్తి సూత్రాన్ని ఉత్పాదన చేయండి?

OR

b. Derive Schodinger time dependent wave equation.

స్కాడింజర్ కాల సమీకరణాన్ని ఉత్పాదించండి?

12. a. Explain Liquid drop model of nuclus.

ద్రవ బిందు నమోనా గురించి వివరించండి?

OR

b. Explain the construction and working of GM counter.

GM కౌంటర్ నిర్మాణము పనిచేయు విధానాన్ని తెలపండి?

13. a. Explain about type -1 and type -2 superconductors and write brief about BCS theory.

1 వ రకం - 2 వ రకం అతివాహక పదార్థాల గురించి వివరించి BCS సిద్ధాంతమును వ్రాయండి?

OR

b. Explain the distinct properties of nano materials.

నానో పదార్థాల యొక్క ధర్మాలను వివరించండి?

UG PROGRAM (4 Years Honors)

CBCS - 2020-21

B.Sc
MICROBIOLOGY

Syllabus and Model Question Papers

TABLE OF CONTENTS

S.No	Particulars	Page No.
1	Resolutions of the BOS	4
2	Details of Course titles & Credits	5
	a. Proposed combination subjects:	5
	b. Student eligibility for joining in the course:	6
	c. Faculty eligibility for teaching the course	6
	d. List of Proposed Skill enhancement courses with syllabus, if any	Not Yet finalized by APSCHE
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	AKNU Website
	f. Required instruments/software/ computers for the course	7
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	7
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	8
	i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent	9
3	Program objectives, outcomes, co-curricular and assessment methods	9
4	Details of course-wise syllabus for Theory and Lab	13
5	Model Question Papers for Theory and Lab	30
6	Details of Syllabus on Skill Enhancement courses and Model Question Papers for Theory and Lab	Not Yet finalized by APSCHE

Resolutions of the Board of Studies:

BOS Meeting held on 22nd January 2021, 10:00AM
at NTR Convention Center,
Adikavi Nannaya University Campus

Agenda:

1. Adoption of revised-common program structure and revising/updating course-wise syllabi(in the prescribed format) as per the guidelines issued by APSCHE
2. Adoption of regulations on scheme of examination and marks/grading system of the University UG program
3. Preparation of Model question papers in prescribed format
4. List of equipments /software requirement for each lab/practical
5. Eligibility of students for joining the course
6. Eligibility of faculty for teaching the course
7. Any specific instructions to teacher/paper-setter/student/Chieh superintendent /paperevaluator
8. List of paper-setter /paper evaluator with phone, email-id in the prescribed format

Members present:

Dr.K.Aruna
Convenor, BOS
Lecturer in Microbiology
ASD Govt. College for Women, Autonomous
Kakinada

Smt. Thokala Sony
Lecturer in Microbiology
SCIM Government degree college, Tanuku

Dr. J. Balaji Chandra Mouli
Assistant professor
Dept. of Biotechnology/Microbiology
Coordinator BOS AKNU, Rajahmundry.

Resolutions:

The syllabus of B.Sc. MICROBIOLOGY (CBCS) revised by The APSCHE in 2020 has been reviewed by the undersigned BOS members of Microbiology, U.G Course, AKN University Rajahmundry.

The syllabi of five core courses (i.e. four semesters) have been approved with necessary corrections. Three core courses will be in the first three semesters, and the fourth and fifth courses will be in the fourth semester as tabulated in page no. 1. The major modifications (not exceeding 20%) made are listed below:

I. *Microbial Physiology and Biochemistry* in semester II, the topics Extra chromosomal elements – plasmids have been shifted to unit V of the same course. Structure of ribosomes is deleted as it is covered in types of RNA Unit-I of the same course. In unit -V the topics plasmids(pBR322), cosmids, phasmids, lambda phage and M13 have been added. DNA polymerase have been deleted as it is covered in DNA replication.

II. *Medical Microbiology and immunology* in semester IV, Unit III the topic Hepatitis A is replaced with Corona virus. RT PCR is introduced in Unit -IV. In unit-IV identification by biochemical characteristics is limited to IMViC. Normal flora of human body (Hands, Feet, Nostrils, Teeth Surface) & Effectiveness of Hand Sanitizers by Filter Paper Disc Method& Thumb impression method.

III. In the Course *Microbial Ecology and Industrial Microbiology the topic* strain improvement is added instead of techniques involved in selection of industrial important metabolites from microbes as this is more suitable for the course. In unit-IV general composition of fermentation media (Carbon source, nitrogen source, minerals, vitamins & growth factors, Buffers, Precursors, Antifoam agents, water, oxygen) is introduced.

IV. In the practical Course *Microbial Ecology and Industrial Microbiology*the following list of practicals are introduced

- Isolation of microorganism from soil
- MPN test
- Isolation of food spoilage microorganisms from spoiled food samples
- Crowded plate technique
- Preparation of yoghurt
- Production of single cell protein (any bacterial and fungal cultured dry mass)
- Isolation of microorganism from different water samples

DETAILS OF COURSE TITLES & CREDITS

Sem	Course No	Course Name	Course Type (L/T/P)	Hrs/Week	Credits	Max. Marks	Max. Marks
				Sciences:4+2	Sciences: 4+1	Internal/ Conti./ Mid Assessment	Sem- End Exam
I	1	Introduction To Microbiology and Microbial Diversity	T	4	4	25	75
	2	Introduction To Microbiology and Microbial Diversity Lab	L	2	1	-	50
II	3	Microbial Physiology and Biochemistry	T	4	4	25	75
	4	Microbial Physiology And Biochemistry Lab	L	2	1	-	50
III	5	Molecular Biology and Microbial	T	4	4	25	75
	6	Molecular Biology and Microbial Lab	L	2	1	-	50
IV	7	Immunology And Medical Microbiology	T	4	4	25	75
	8	Immunology and Medical Microbiology Lab	L	2	1	-	50
	9	Microbial Ecology and Industrial Microbiology	T	4	4	25	75
	10	Microbial Ecology and Industrial Microbiology Lab	L	2	1	-	50

Note: *Course type code: T: Theory, L: Lab, P: Problem-solving

a. Proposed combination subjects

BSc CBMB(Chemistry, Botany &Microbiology) BSc (Chemistry, Biochemistry &Microbiology)
BSc (Nutrition, Biochemistry & Microbiology)
BSc (Computer Science, Biochemistry & Microbiology) BSc (Chemistry, Zoology &Microbiology)
BSc (Food Chemistry, Zoology & Microbiology)

b. Student eligibility for joining in the course:

Eligibility Criteria for BSc - MICROBIOLOGY

1. BiPC – Intermediate with Botany, physics, chemistry
2. MBPC (CBSE) - Mathematics, Biology, Physics, Chemistry
3. MPC- Mathematics, Physics, Chemistry
4. MLT vocational course - Medical lab technology
5. MPHW (F)- Multipurpose Health Worker
6. SERI VOCATIONAL
7. CP&M-Crop Production & Management
8. DAIRY- Dairying livestock & management
9. FISH- Fisheries vocational
10. OT-Ophthalmic technician
11. PT-physiotherapy vocational

REFERENCE: https://oamdc.ap.gov.in/courseEligibilityReport.do

c. Faculty eligibility for teaching the course: MSc Microbiology with NET/SLET/Ph.D

d. List of Proposed Skill enhancement courses with syllabus, if any Not Yet finalized by APSCHE

e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources, **Visit AKNU Website**

f. Required instruments/software/ computers for the course (Lab/Practical course-wiserequired i.e., for a batch of 15 students)

SEM. No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
I	MBP-I INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY	Autoclave	Biotech	2
		Hot air Oven	Biotech	1
		Incubator	Biotech	1
		Laminar air flow/Inoculation Chamber	Biotech	1
		Microscopes	Olympus	10
		Refrigerator	Whirlpool	1
II	MBP-IIMICROBIAL PHYSIOLOGY AND BIOCHEMISTRY	Chromatography chamber	Thermo Fisher Scientific	5
		Table top Centrifuge	Remi	2
		Ultra-Centrifuge	Remi	1
		Colorimeter	X- Rite	5
		Ph Meter	Lab India	4
		Column chromatography	Thermo Fisher Scientific	1
		Gel electrophoresis Unit	Thermo Fisher Scientific	1
		Gel documentation Unit	Thermo Fisher Scientific	1
III	MBP-IIIMOLECULAR BIOLOGY AND MICROBIAL GENETICS	Spectrophotometer	HITACHI	1
IV	MBP-IV IMMUNOLOGY AND MEDICAL MICROBIOLOGY	NIL	-	-
IV	MBP-V MICROBIAL ECOLOGY AND INDUSTRIAL MICROBIOLOGY	NIL	-	-

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations

Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly define them, with reliable justification

S.No.	Position	Company/ Govt organization	Remarks	Additional skills required, if any
1	Ward Sanitation & Environment Secretary (Grade-II)	Andhra Pradesh Government		Patience Attention to detail Decisiveness Independence Excellent IT skills Numerical skills Analytical skills Teamworking skills Communication skills Technical and critical thinking skills
2	Research Assistant	CSIR, DBT		
3	Quality Assurance Technologists	Food & Pharma companies		
4	Medical Representative	Pharma companies		
5	Pharmacologist	Pharma companies		
6	Food Technologist	Food industry		
7	Industrial	Microbiology Industries		
8	Food Technologist	Food companies		
9	Lecturer, Professor	College/ university		
	Environmental Microbiologists	Government/ Environmental Agency		
10	Research Scientist	University/ Government Institutions		
11	Beverage Industry	Beverage Industry		
12	Agriculture Department	Biofertilizers/ Biopesticides		
13	Aquafeed/ Probiotic	Aquaculture		
14	Personal Care Product and Cosmetic Scientists and Technologists	Cosmetics, Shampoos, Soaps		
15	Govt. Veterinary Biological Research Institute	Animal Vaccine Production		

h. List of Govt. organizations / Pvt companies for employment opportunities or internshipsor projects

S.No	Company/ Govt organization	Position type	Level of Position
1	Government of Andhra Pradesh	Ward Sanitation & Environment Secretary	Grade-II
2	Biocontrol Lab	Internship	Grade-I
3	SIFT, Kakinada	Microbiologist /Projects	Grade-I
4	Soil testing lab Samalkot	Microbiologist /Projects	Grade-I
5	Local Hospitals	Internship	Grade-II
6	Dr.Reddys lab Yanam	Pharmacologist	Grade-II
7.	Aquafeed/Probiotics	Microbiologist	Grade-II
8.	Seafood, Fish processing units	QC Microbiologists	Grade-II
9	VBRI,Samalkot	Internship	Grade-I
10	Horticultural Research Station, Ambajipeta	Internship	Grade-I

i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent

WEIGHTAGE OF THE COURSE CONTENT

S.NO	UNIT	Short Answer Questions Marks: 5X5=25	Essay Questions Marks:5X10=50
1	I	02 or 01	02
2	II	01or 02	02
3	III	02	02
4	IV	01	02
5	V	02	02
Total no of questions		08	10

3. Program objectives, outcomes, co-curricular and assessment methods

1. Aim and objectives of UG program BSc Microbiology:

The programme BSc Microbiology introduces students to the vast array of microbes *viz* bacteria, archaea, viruses, fungi and protozoa around us, their diversity and applications. The programme has a strong practical emphasis, providing students with the basic laboratory skills required for a career in either applied or research microbiology.

Program outcomes:

PO1: Graduates will acquire adequate knowledge and leadership skills for a successful career
PO2: Graduates will be able to analyze and solve biology based problems.
PO3: Graduates will cooperate with each other to solve problems with creative thinking.
PO4: Graduates will acquire practical skills- plan & execute experimental techniques independently as well as to analyse & interpret data.
PO5: Graduates will effectively be able to manage resources & time.
PO6: Graduates will be able to learn independently and develop critical thinking.
PO7: Graduates will accomplish ability to communicate effectively and able to understand ethical responsibility.
PO8: Graduates will get adequate knowledge to use information & communication technology.
PO9: Graduates will carry on to learn and to adapt in a world of constantly evolving technology.

2. Program Specific outcomes:

Microbiology students who graduate with a Bachelor of Science with Microbiology will

PSO1: Acquire knowledge on fundamentals of Microbiology
PSO2: Understand details of bacterial, fungal, algal and viral morphology and physiology.
PSO3: Competently be able to cultivate and characterize bacterial and fungal forms.
PSO4: Grasp the fundamental concepts of immunity and the contribution of organs and cellsin the development of immune response.
PSO5: Gain insight into the various aspects of microbial genetics.
PSO6: Be proficient on cloning vectors and rDNA technology.
PSO7: Assimilate technical skills on microbial genetics and molecular biology.
PSO8: Realize the application-oriented aspects of Microbiology.
PSO9: Understand the concepts and development of microbial diseases in animals & plants.
PSO10: Realize the principles of prevention and treatment of microbial diseases.

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class- cum-lab work
Not Yet finalized by APSCHE

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)
OBJECTIVES:
The co-curricular activities are aimed at strengthening the theoretical knowledge with an activity related to the content taught in the class room. The aesthetic development, character building, spiritual growth, physical growth, moral values, creativity of the student.
The different types of co-curricular activities relevant to Microbiology domain are listed below:

A. Measurable:

1. Assignments on:
2. Student seminars (Individual presentation of papers) on topics relating to:
3. Quiz Programmes on:
4. Individual Field Studies/projects:
5. Group discussion on:
6. Group/Team Projects on:

B General

1. Collection of news reports and maintaining a record of paper-cuttings relatingto topics covered in syllabus
2. Group Discussions on:
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
4. Any similar activities with imaginative thinking.
5. Organization of first-aid camp, swachhbharat, cleanliness week, Nutrition, personal hygiene and health awarenessetc
6. Exposure to scientific instruments and hands- on experience
7. Field visit/Industrial visit/Research Laboratory visit and submission of report

5. Recommended Continuous Assessment methods:
In the student evaluation pattern, each paper carries 100 marks out of which 25 marks are allotted for internal assessment and remaining 75 marks foe external assessment asgiven below.

Pattern of Evaluation	Allotted Marks	Minimum Pass marks	Allotted time	Remarks
Internal Assessment	25	10	1 Hour	Assessed by calculating average of two descriptive internals
External Assessment	75	28	3 Hours	-

Internal Assessment in Each Semester 25 marks

- Part-I: 15 marks, average of two descriptive internal exams (Each descriptiveexam duration is 1 hour)
- Part-II: 5 Marks for Assignment
- Part-III: 5 marks for Attendance

B Sc	Semester: I	Credits: 4
Course: 1	Introduction to Microbiology and MicrobialDiversity	Hrs/Wk: 4

Aim and objectives of Course:
To understand History & Development of Microbiology, Microscopy, staining and sterilization techniques, Ultra-structure of cell, Different methods of microbial characterization To study nature of viruses, viral classification, cultivation of viruses and Type study of TMV & HIV

Learning outcomes of Course
Up on completion of the course students able to

1. Explain relationship and apply appropriate terminology relating to the structure, Genetics, metabolism and ecology of prokaryotic microorganisms, Algae, viruses and Fungi.
2. Students will get basics and importance of Microbiology.
3. Demonstrate appropriate laboratory skill and techniques related to isolation, staining, identification and control of microorganisms.

UNIT I:
History of Microbiology & Place of Microorganisms in the living world: History of Microbiology in the context of contributions of Anton von Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch, Ivanowsky,Martinus Beijerinck and Sergei Winogradsky. Importance and applications of microbiology, Place of Microorganisms in the Living World Haeckel's three Kingdom concept, Whittaker's five kingdom concept, three domain concept of Carl Woese

UNIT II:
Prokaryotic microorganisms and Viruses: Ultra-structure of Prokaryotic cell- Cell Wall, Cell Membrane, Cytoplasm, Nucleoid, Plasmid, Inclusion Bodies, Flagella Pili, Capsule, Endospore
General characteristics of Bacteria (Size, shape, arrangement, reproduction) General characteristics of Rickettsia, Mycoplasmas, Cyanobacteria, Archaea General characteristics of viruses, Cultivation of Viruses (in brief) Morphology, Structure and replication of TMV and Lambda Bacteriophage.

UNIT III:
Eukaryotic microorganisms: Fungi - Habitat, nutrition, vegetative structure and modes of reproduction; outline classification, Algae - Habitat, thallus organization, photosynthetic pigments, storage forms of food, reproduction.. Protozoa – Habitat, cell structure, nutrition, locomotion, excretion, reproduction, encystment, outline classification.

UNIT IV:
Isolation and Culture of Bacteria and Fungi: Growth media- Natural, synthetic and semi synthetic media. Selective, Enrichment, and Differential media Pure culture techniques - dilution-plating, Streak-plate, Spread-plate, Pour-Plate and micromanipulator. Preservation of microbial cultures - sub culturing, overlaying cultures with mineral oils, lyophilization, sand cultures, storage at low temperature.

UNIT V:
Principles of Microscopy, Sterilization and Disinfection: Principles of microscopy - Bright field and Electron microscopy (SEM and TEM). Staining Techniques - Simple and Differential staining techniques (Gram staining, Sporestaining). Sterilization and disinfection techniques – Physical methods - autoclave, hot- air oven, pressure cooker, laminar air flow, filter sterilization, Radiation methods - UV rays, Gamma rays. Chemical methods - alcohols, aldehydes, fumigants, phenols, halogens and hypochlorite's.

RECOMMENDED TEXT BOOKS:

1. Pelczar, M.J., Chan, E.C.S. and Kreig, N.R. (1993). Microbiology. 5th Edition, Tata McGraw Hill Publishing Co., Ltd., New Delhi.
2. Dube, R.C. and Maheswari, D.K. (2000) General Microbiology. S Chand, New Delhi. Edition), Himalaya Publishing House, Mumbai.
3. Power, C.B. and Daginawala, H.F. (1986). General Microbiology Vol I & II
4. Prescott, M.J., Harley, J.P. and Klein, D.A. (2012). Microbiology. 5th Edition, WCB McGrawHill, New York.
5. Reddy, S.M. and Reddy, S.R. (1998). Microbiology Practical Manual, 3 rd Edition, Sri Padmavathi Publications, Hyderabad.

REFERENCE BOOKS:

1. Singh, R.P. (2007). General Microbiology. Kalyani Publishers, New Delhi.
2. Stanier, R.Y., Adelberg, E.A. and Ingram, J.L. (1991). General Microbiology, 5th Ed., Prentice Hall of India Pvt. Ltd., New Delhi.
3. Microbiology Edited by Prescott
4. Jaya Babu (2006). Practical Manual on Microbial Metabolisms and General Microbiology. Kalyani Publishers, New Delhi.
5. Gopal Reddy *et al.*, Laboratory Experiments in Microbiology

B Sc	Semester: I	Credits: 1
Course: 1(L)	Introduction to Microbiology and MicrobialDiversity Lab	Hrs/Wk: 2

List of the Practical's:

1. Microbiology Good Laboratory Practices and Biosafety.
2. Preparation of culture media for cultivation of bacteria- Nutrient broth & Nutrient agar
3. Preparation of culture media for cultivation of fungi – Sabourauds agar
4. Sterilization of medium using Autoclave
5. Sterilization of glassware using Hot Air Oven
6. Light compound microscope and its handling
7. Microscopic observation of bacteria (Gram +ve bacilli and cocci, Gram -ve bacilli), Algae and Fungi.
8. Simple staining
9. Gram's staining
10. Hanging-drop method& temporary wet mount (TWM) for observation of living microrganisms.
11. Isolation of pure cultures of bacteria by serial dilution and Streak/Spread/Pour Plate Method.
12. Preservation of bacterial cultures by Serial subculturing & Slant Preparation with mineral oil overlay.
13. Observation of electron micrographs of bacterial cells

RECOMMENDED TEXT BOOKS:

1. Pelczar, M.J., Chan, E.C.S. and Kreig, N.R. (1993). Microbiology. 5th Edition, Tata McGraw Hill Publishing Co., Ltd., New Delhi.
2. Dube, R.C. and Maheswari, D.K. (2000) General Microbiology. S Chand, New Delhi. Edition), Himalaya Publishing House, Mumbai.
3. Power, C.B. and Daginawala, H.F. (1986). General Microbiology Vol I & II
4. Prescott, M.J., Harley, J.P. and Klein, D.A. (2012). Microbiology. 5th Edition, WCB McGrawHill, New York.
5. Reddy, S.M. and Reddy, S.R. (1998). Microbiology Practical Manual, 3 rd Edition, Sri Padmavathi Publications, Hyderabad.
6. Singh, R.P. (2007). General Microbiology. Kalyani Publishers, New Delhi.
7. Stanier, R.Y., Adelberg, E.A. and Ingram, J.L. (1991). General Microbiology, 5th Ed., Prentice Hall of India Pvt. Ltd., New Delhi.
8. Microbiology Edited by Prescott
9. Jaya Babu (2006). Practical Manual on Microbial Metabolisms and General Microbiology. Kalyani Publishers, New Delhi.
10. Gopal Reddy *et al.*, Laboratory Experiments in Microbiology

B Sc	Semester: II	Credits: 4
Course: 2	Microbial Physiology and Biochemistry	Hrs/Wk: 4

Aim and objectives of Course:

To understand DNA, RNA, Protein structure and synthesis. DNA damage, mutations and repair. Gene transfer methods.

Learning outcomes of Course:

1. This Course provides Understanding of biomolecular synthesis and control will help in further study.
2. Develop knowledge on microbial genetics and molecular biology

UNIT I:

Biomolecules: General characters and outline classification of Carbohydrates (Monosaccharides- Glucose, Fructose, Ribose, Disaccharides- Sucrose, Lactose, Polysaccharides- Starch, glycogen, Cellulose) General characters and outline classification of fatty acids (Saturated & Unsaturated Fatty Acids) Lipids (Simple & complex lipids) General characteristics of Amino Acids and Proteins. Structure of Nucleic acids.

UNIT II:

Enzymes: Properties and classification of Enzymes. Biocatalysis- induced fit and lock and key models. Coenzymes and Cofactors. Inhibition of enzyme activity- competitive, noncompetitive, uncompetitive and allosteric. Factors effecting enzyme activity

UNIT III:

Analytical Techniques: Principle and applications of - Colorimetry Chromatography (paper, thin-layer, and column), Spectrophotometry (UV & visible), Centrifugation and Gel Electrophoresis (Agarose and SDS).

UNIT IV:

Microbial Nutrition and growth: Nutritional requirements of Microorganisms Nutritional groups of microorganisms- autotrophs, heterotrophs, lithotrophs, organotrophs, phototrophs, chemotrophs
Microbial Growth- different phases of growth in batch cultures; Synchronous, continuous, biphasic growth. Factors influencing microbial growth Methods for measuring microbial growth - Direct microscopy, viable count estimates, turbidometry and biomass.

UNIT V :

Microbial metabolism: Aerobic respiration - Glycolysis, TCA cycle, ED Pathway, Electron transport Oxidative and substrate level phosphorylations. Anaerobic respiration (Nitrate and sulphate respiration) Fermentation- lacticacid and ethanol fermentations Outlines of oxygenic and anoxygenic photosynthesis in bacteria.

RECOMMENDED TEXT BOOKS:

1. Berg JM, Tymoczko JL and Stryer L (2011) Biochemistry, W.H.Freeman and Company Caldwell, D.R. (1995). Microbial Physiology and Metabolism, W.C. Brown Publications,Iowa, USA.
2. Lehninger, A.L., Nelson, D.L. and Cox, M.M. (1993). Principles of Biochemistry, 2nd Edition, CBS Publishers and Distributors, New Delhi.
3. Sashidhara Rao, B. and Deshpande, V. (2007). Experimental Biochemistry: A student Companion. I.K. International Pvt. Ltd.
4. Tymoczko JL, Berg JM and Stryer L (2012) Biochemistry: A short course, 2nd ed.,
5. W.H.Freeman
6. Voet,D. and Voet J.G (2004) Biochemistry 3rd edition, John Wiley and Sons
7. White, D. (1995). The Physiology and Biochemistry of Prokaryotes, Oxford UniversityPress, New York.

B Sc	Semester: II	Credits: 1
Course: 2(L)	Microbial Physiology and Biochemistry Lab	Hrs/Wk: 2

List of Experiments:

1. Qualitative Analysis of Carbohydrates.
2. Qualitative Analysis of Aminoacids.
3. Colorimetric estimation of proteins by Biuret / Lowry method.
4. Separation of components of a given mixture using a laboratory scale centrifuge.
5. Separation of mixtures by paper / thin layer chromatography.
6. Demonstration of column packing in any form of column chromatography.
7. Effectoftemperature/pH / Salt concentration on bacterial growth
8. Demonstration of electrophoretic technique
9. Study and plot the growth curve of E. coli by turbidometric and Standard Plate Count methods

RECOMMENDED TEXT BOOKS &REFERENCE BOOKS:

1. Berg JM, Tymoczko JL and Stryer L (2011) Biochemistry, W.H.Freeman and Company Caldwell, D.R. (1995). Microbial Physiology and Metabolism, W.C. Brown Publications,Iowa, USA.
2. Lehninger, A.L., Nelson, D.L. and Cox, M.M. (1993). Principles of Biochemistry, 2nd Edition, CBS Publishers and Distributors, New Delhi.
3. Sashidhara Rao, B. and Deshpande, V. (2007). Experimental Biochemistry: A student Companion. I.K. International Pvt. Ltd.
4. Tymoczko JL, Berg JM and Stryer L (2012) Biochemistry: A short course, 2nd ed.,
5. W.H.Freeman
6. Voet,D. and Voet J.G (2004) Biochemistry 3rd edition, John Wiley and Sons
7. White, D. (1995). The Physiology and Biochemistry of Prokaryotes, Oxford UniversityPress, New York.

B Sc	Semester: III	Credits: 4
Course: 3	Molecular Biology and Microbial Genetics	Hrs/Wk: 4

Aim and objectives of Course:
To understand different biomolecules, analytical techniques, bacterial nutrition, growth and metabolism
Learning outcomes of Course: Up on completion of this course students should able to:

1. Explain working principle and applications of Colorimetry, Chromatography, Spectrophotometry, Centrifugation and Gel Electrophoresis.
2. Knowledge on Microbial nutrition, bacterial growth, metabolism and Respiration.
3. The student will get first-hand experience on separation methods

UNIT I:
Nucleic acids: DNA and RNA - Role in heredity-The central dogma Watson and Crick model of DNA, Types of RNA, structure, and functions, Organization of DNA in prokaryotes

UNIT II :
Genetic material and replication: Experiments which established DNA as genetic material RNA as genetic material, Mechanism of DNA Replication in Prokaryotes, Proof of semi conservative mechanism of replication (Meselson - Stahl Experiment)

UNIT III:
Gene expression and regulation: Concept of gene - Muton, recon and cistron. Genetic code
Protein synthesis - Transcription and translation in Prokaryotes Regulation of gene expression in bacteria -*lac* operon

UNIT IV:
Mutations, damage and repair: Outlines of DNA damage and repair mechanism Mutations - spontaneous and induced Chromosomal aberrations - deletions, inversions, tandem duplications, insertions Point mutations- base pair changes, frame shifts Mutagens - Physical and Chemical mutagens Bacterial recombination-Transformation, Conjugation, Transduction (Generalized and specialized transductions)

UNIT V:
Genetic engineering: Basic principles of genetic engineering. Restriction endonucleases, DNA ligases. Vectors – plasmids (pBR322), Cosmids, Phagemids, lambda phage vector, M 13 vectors.
Outlines of gene cloning methods. Polymerase chain reaction. Genomic and cDNA libraries. General account on application of genetic engineering in industry, agriculture, and medicine.

RECOMMENDED TEXT BOOKS:

1. Freifelder, D. (1990). Microbial Genetics. Narosa Publishing House, New Delhi. Freifelder, D. (1997). Essentials of Molecular Biology. Narosa Publishing House, New Delhi.
2. Glick, B.P. and Pasternack, J. (1998). Molecular Biotechnology, ASM Press,Washington D.C., USA.
3. Lewin, B. (2000). Genes VIII. Oxford University Press, England.
4. Maloy, S.R., Cronan, J.E. and Freifelder, D. (1994). Microbial Genetics, Jones and Bartlett Publishers, London.
5. Ram Reddy, S., Venkateshwarlu, K. and Krishna Reddy, V. (2007) A text Book of Molecular Biotechnology. Himalaya Publishers, Hyderabad.
6. Sinnot E.W., L.C. Dunn and T. Dobzhansky. (1958). Principles of Genetics. 5 th Edition. McGraw Hill, New York.
7. Smith, J.E. (1996). Biotechnology, Cambridge University Press.
8. Snyder, L. and Champness, W. (1997). Molecular Genetics of Bacteria. ASM press,
9. Strickberger, M.W. (1967). Genetics. Oxford & IBH, New Delhi. Verma, P.S. and Agarwal, V.K. (2004). Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand & Co. Ltd., New Delhi

B Sc	Semester: III	Credits: 1
Course: 3(L)	Molecular Biology and Microbial Genetics Lab	Hrs/Wk: 2

List of the Experiments:

1. Study of different types of DNA and RNA using micrographs and model / schematic representations.
2. Study of semi-conservative replication of DNA through micrographs / schematic representations
3. Isolation of genomic DNA from *E. coli*
4. Estimation of DNA using UV spectrophotometer.
5. Resolution and visualization of DNA by Agarose Gel Electrophoresis.
6. Resolution and visualization of proteins by Polyacrylamide Gel Electrophoresis (SDS - PAGE).
7. Problems related to DNA and RNA characteristics, Transcription and Translation.
8. Induction of mutations in bacteria by UV light.
9. Instrumentation in molecular biology - Ultra centrifuge, Transilluminator, PCR

REFERENCE BOOKS:

1. Smith, J.E. (1996). Biotechnology, Cambridge University Press.
2. Snyder, L. and Champness, W. (1997). Molecular Genetics of Bacteria. ASM press,
3. Strickberger, M.W. (1967). Genetics. Oxford & IBH, New Delhi.
4. Verma, P.S. and Agarwal, V.K. (2004). Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand & Co. Ltd., New Delhi.

B Sc	Semester: IV	Credits: 4
Course: 4	Immunology and Medical Microbiology	Hrs/Wk: 4

Aim and objectives of Course:

- To study types of immunity, immune organs, cells, antibodies and antigenantibody interactions.
- To learn diagnostic and pathogenesis of various diseases. Antimicrobial defense and different toxins and vaccines.

Learning outcomes of Course: Up on completion of the course students able to

1. Explain No-specific body defence and the immune response
2. Develop knowledge on disease transmission and control
3. Demonstrate on collection and handling of laboratory specimens
4. Develop an information making personal health decision in regard to infectious diseases.
5. Student can safeguard himself & society and can work diagnostics and hospitals.

UNIT I:

Immune System: Concept of Innate and Adaptive immunity Primary and secondary organs of immune system - thymus, bursa fabricus, bone marrow, spleen, lymph nodes. Cells of immune system- Identification and function of B and T lymphocytes, null cells, monocytes, macrophages, neutrophils, basophils and eosinophils Complement system (in brief)

UNIT II :

Immune response: Characteristics of antigen (Foreignness, Molecular size, Heterogeneity and solubility) Haptens. Antibodies - basic structure and types and functions (Immune complex formation and elimination - Agglutination, Precipitation, Neutralization, Complement fixation, Phagocytosis) Generation of Humoral Immune Response (Plasma and Memory cells) Generation of Cell Mediated Immune Response MHC- Functions of MHC I & II molecules Hypersensitivity-definition and types (in brief) Autoimmunity (in brief)

UNIT III:

Microbes in Health and Disease: Normal flora of human body. Definitions - Infection, Invasion, Pathogen, Pathogenicity, Virulence, Toxigenicity, Opportunistic infections, Nosocomial infections. General account on microbial diseases – causal organism, pathogenesis, epidemiology, diagnosis, prevention, and control of the following Bacterial diseases - Tuberculosis, Typhoid. Fungal diseases - Candidiasis. Protozoal diseases - Malaria. Viral Diseases –Corona virus and AIDS

UNIT IV:

Principles of Diagnosis: General principles of diagnostic microbiology- Collection, transport of clinical samples, Identification by Culturing&Biochemical characteristics (IMViC),Identification by molecular assays (PCR, RT-PCR, DNA probes), Identification by serological tests (ELISA, Immunofluorescence, Agglutination based tests, Complement fixation)

UNIT V:

Prevention and Treatment: Vaccines Monoclonal antibodies- Production and application Antimicrobial agents- General modes of action of antibacterial (Penicillin), antifungal (Amphotericin), antiviral (Amantadine)agents Interferons Tests for antimicrobial susceptibility (Disc diffusion) Antibiotic resistance in bacteria.

RECOMMENDED TEXT BOOKS:

1. Ananthanarayan R. and Paniker C.K.J. (2009) Textbook of Microbiology. 8th edition, University Press Publication.
2. Brooks G.F., Carroll K.C., Butel J.S., Morse S.A. and Mietzner, T.A. (2013) Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Publication.
3. Delves P, Martin S, Burton D, Roitt IM. (2006). Roitt's Essential Immunology.11th edition Wiley-Blackwell Scientific Publication, Oxford.
4. Goldsby RA, Kindt TJ, Osborne BA. (2007). Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.

REFERENCE BOOKS:

1. Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
2. Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Microbiology. 4th edition. Elsevier Publication.
3. Willey JM, Sherwood LM, and Woolverton CJ. (2013) Prescott, Harley and Klein's Microbiology. 9th edition. McGraw Hill Higher Education.

B Sc	Semester: IV	Credits: 1
Course: 4(L)	Immunology and Medical Microbiology Lab	Hrs/Wk: 2

List of the Experiments:

1. Identification of human blood groups.
2. Separate serum from the blood sample (demonstration).
3. Immunodiffusion by Ouchterlony method.
4. Identification of any of the bacteria (*E. coli, Pseudomonas, Staphylococcus, Bacillus*) using laboratory strains on the basis of cultural, morphological and biochemical characteristics: IMViC, urease production and catalase tests
5. Study of composition and use of important differential media for identification of bacteria: EMB Agar, McConkey agar, Mannitol salt agar
6. Antibacterial sensitivity by Kirby-Bauer method
7. Determination of Minimal Inhibitory Concentration (MIC) of an antibiotic
8. Study symptoms of the diseases with the help of photographs: Anthrax,Polio, Herpes, chicken pox, HPV warts, Dermatomycoses (ring worms)
9. Study of various stages of malarial parasite in RBCs using permanent mounts.
10. Phenol coefficient test
11. Isolation of Normal flora of human body (Hands, Feet, Nostrils, Teeth Surface) by swab method.
12. Evaluation of Hand Sanitizer Effectiveness by Filter Paper Disc Method & thumb impression method.

RECOMMENDED TEXT BOOKS & REFERENCE BOOKS:

1. Ananthanarayan R. and Paniker C.K.J. (2009) Textbook of Microbiology. 8th edition, University Press Publication.

2. Brooks G.F., Carroll K.C., Butel J.S., Morse S.A. and Mietzner, T.A. (2013) Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Publication.

3. Delves P, Martin S, Burton D, Roitt IM. (2006). Roitt's Essential Immunology.11th edition Wiley-Blackwell Scientific Publication, Oxford.

4. Goldsby RA, Kindt TJ, Osborne BA. (2007). Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.

4. Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.

5. Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Microbiology. 4th edition. Elsevier Publication.

6. Willey JM, Sherwood LM, and Woolverton CJ. (2013) Prescott, Harley and Klein's Microbiology. 9th edition. McGraw Hill Higher Education.

B Sc	Semester: IV	Credits: 4
Course: 5		Hrs/Wk: 4

Aim and objectives of Course:

- To study role of microorganisms in nutrient cycling, microorganism in waste treatment and degradation of xenobiotics
- To determine the potability of drinking water
- To study concepts of screening and strain improvement, media, Fermentation, assays with examples of industrially important processes

Learning outcomes of Course: Up on completion of the course students able to

- Understand fundamental concept in soil microbial diversity, basic concept of biogeochemical cycles and plant growth promotion and plant diseases
- Understands the role of microorganisms in treatment of solid and liquid waste.
- Acquire knowledge on application of microorganisms in agro – environmental fields.
- Get basic information design of fermenter, fermentation processes and Single cell proteins.
- Self-reliance in the industrial application of Microbiology in life and industry.
- Entrepreneurship can be established with the gained knowledge.

UNIT I:

Microbial Ecology: Role of microorganisms in Biogeochemical cycles (Carbon, nitrogen, phosphorus) Microbe-microbe interactions - Synergism, mutualism, commensalism, antagonism, competition, parasitism, predation Plant- Microbe interactions - Plant growth promoting Microorganisms, Plant pathogens

UNIT II:.

Microorganisms in Environment: Microbes in waste management- solid and liquid waste (aerobic and anaerobic) Microbes in degradation of Xenobiotics Microbes in drinking water-detection of potability by (a) standard qualitative procedure: presumptive test/MPN test, confirmed and completed tests for faecal coliforms (b) Membrane filter technique Microbes in food - intrinsic and extrinsic parameters that affect microbial growth in food.

UNIT III:

Industrial Microbiology: Industrial important Microorganisms- Yeasts & Moulds , Bacteria , Actinomycetes . Screening techniques. Strain improvement techniques.

UNIT IV:

Fermentation processes: Design of fermented (for control of pH, temperature, dissolved oxygen, foaming and aeration) Types of fermentation processes - solid state, liquid state, batch, fed-batch, continuous. Fermentation media (Carbon source, nitrogen source, minerals, vitamins & growth factors, Buffers, Precursors, Antifoam agents, water, oxygen)Examples of Crude media; molasses, corn- steep liquor, sulphite waste liquor, whey. Downstream processing - filtration, centrifugation, cell disruption, solvent extraction.

UNIT V:

Microbial Productions: Microbial production of Industrial products: Citric acid, Ethanol, Penicillin, Glutamic acid, vitamin B12, Amylase, Yogurt Microbial cells as food- SCP

RECOMMENDED TEXT BOOKS:

- Atlas RM and Bartha R. (2000). **Microbial Ecology: Fundamentals & Applications.** 4th edition. Benjamin/Cummings Science Publishing, USA
- Barton LL & Northup DE (2011). **Microbial Ecology**. 1st edition, Wiley Blackwell, USA
- Campbell RE. (1983). **Microbial Ecology**. Blackwell Scientific Publication, Oxford, England
- Coyne MS. (2001). **Soil Microbiology: An Exploratory Approach.** Delmar Thomson Learning
- Lynch JM &Hobbie JE. (1988). **Microorganisms in Action: Concepts & Application in Microbial Ecology.** Blackwell Scientific Publication, U.K
- Madigan MT, Martinko JM and Parker J. (2014). **Brock Biology of Microorganisms**. 14th edition. Pearson/ Benjamin Cummings
- Maier RM, Pepper IL and Gerba CP. (2009). **Environmental Microbiology**. 2nd edition, Academic Press

B Sc	Semester: IV	Credits: 1
Course: 5(L)	Microbial Ecology and Industrial Microbiology Lab	Hrs/Wk: 2

List of the Experiments:

1. Microbial fermentation for the production and estimation of ethanol
2. Isolation of amylase producing microorganisms from soil
3. Isolation of food spoilage microorganisms from spoiled food sample.
4. MPN test
5. Demonstration of fermenter
6. Production of wine from grapes
7. Growth curve and kinetics of any two industrially important microorganisms.
8. Microbial fermentation for the production and estimation of citric acid
9. Preparation of yoghurt.
10. Crowded plate technique
11. Isolation of microorganism from soil
12. Isolation of microorganism from different water samples

REFERENCE BOOKS:

1. Martin A. (1977). **An Introduction to Soil Microbiology**. 2nd edition. John Wiley & Sons Inc. New York & London. Adams MR and Moss MO. (1995). **Food Microbiology**. 4th edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Banwart JM. (1987). **Basic Food Microbiology**. 1st edition. CBS Publishers and Distributors, Delhi, India.
3. Casida LE. (1991). **Industrial Microbiology**. 1st edition. Wiley Eastern Limited.
4. Crueger W and Crueger A. (2000). **Biotechnology: A textbook of Industrial Microbiology**. 2nd Edition. Panima Publishing Company, New Delhi
5. Frazier WC and Westhoff DC. (1992). **Food Microbiology**. 3rd edition. Tata McGraw- Hill Publishing Company Ltd, New Delhi, India.
6. Jay JM, Loessner MJ and Golden DA. (2005). **Modern Food Microbiology**. 7th edition, CBS Publishers and Distributors, Delhi, India

MODEL QUESTION PAPER (Semester End)
B. Sc DEGREE EXAMINATIONS
SEMESTER - I
Course 1: INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY

Time : 3Hrs **Max. Marks:75**

Section-A

Answer any ***five*** of the following questions 5x5=25M

Draw labelled diagrams wherever necessary

1.Thymus
థైమస్

2.Macrophage
మాక్రోఫేజ్

3.Hypersensitivity reactions
తీవ్రసున్నితత్వప్రతిచర్యలు

4.MHC molecules
ఒంహెచ్సీఅణువులు

5.Nosocomial infections
6నోసోకోమియల్ఇన్ఫెక్షన్లు

6. ELISA
ఎలిసా

7. Corona virus
కరోనావైరస్

8. Interferons
ఇంటర్ఫెరాన్స్

Section-B

Answer all of the following questions 5X10=50M

Draw labelled diagrams wherever necessary

9. a). Explain types of immunity
రోగనిరోధకశక్తిని వివరించండి

Or

b). Write structure and functions of cells of immune system?
రోగనిరోధకవ్యవస్థయొక్కకణాలనిర్మాణంమరియువిధులనువ్రాయాలా?

10.a). Explain antibody structure and types
యాంటీబాడీనిర్మాణం మరియు రకాలను వివరించండి

Or

b).Write cell mediated immune response
సెల్మధ్యవర్తిత్వ రోగనిరోధక ప్రతిస్పందనరాయాలా?

11. a).Explain causal organism, pathogenesis, epidemiology, prevention and control of tuberculosis

కారణజీవి, వ్యాధికారక, ఎపిడెమియాలజీ, నివారణ మరియు నియంత్రణ గురించి వివరించండి

Or

b).Explain normal flora of human body
మానవశరీరం యొక్క సాధారణవృక్షజాలం గురించివివరించండి?

12. a). Write a note on collection and transportation of clinical samples

క్లినికల్నమూనాల సేకరణ మరియు రవాణాపై గమనికరాయాలా

Or

b). Explain methods for identification of clinical samples by serological tests?
సెరోలాజికల్పరీక్షల ద్వారా క్లినికల్నమూనాలను గుర్తించే పద్ధతులను వివరించండి?

13. a). Write a note on vaccines

వ్యాక్సిన్లపైగమనికరాయాలా

Or

b). Explain the tests for antimicrobial susceptibility
యాంటీమైక్రోబయల్సెన్సిటివిటీకోసంపరీక్షలుఏమిటోవివరించండి

MODEL QUESTION COURSE
Semester End Examination - Practical

Time: 3hrs **Max. Marks: 50M**

INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY LAB

Major Experiment **1X20=20M**

1. Write down principle, procedure, do gram staining to given bacterial sample and report

Minor Experiment **1X10=10M**

2. Write down Principle, procedure and perform spread plate method

3. **Identification of spotters** **5X2=10M**
   A. Autoclave
   B. Alexander Fleming
   C. Inoculating loop
   D. Cyanobacteria
   E. Streak plate technique

4. **Viva-Voce** **05M**

5. **Record** **05M**

Total Marks **50M**

MODEL QUESTION PAPER (Semester End)
B. Sc DEGREE EXAMINATIONS
SEMESTER - II
Course 2: MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

Time : 3Hrs **Max. Marks:75**

Section-A

Answer any ***five*** of the following questions 5x5=25M

Draw labelled diagrams wherever necessary

1. Structure of Saturated & unsaturated fatty acids
సంతృప్త మరియు అసంతృప్తకొవ్వు అమ్లాల నిర్మాణం

2. Draw labeled diagram of nucleotide
న్యూక్లియోటైడ్కు లేఖా చిత్రం గీయండి

3. Lock and key model

4. Write about coenzymes and cofactors
కోఎంజైమ్లు మరియు సహకారాల గురించి వ్రాయండి

5. Write about applications of spectrometer.
స్పెక్ట్రోమీటర్కు అనువర్తనాల గురించి వ్రాయండి

6. Effect of temperature on Growth of bacteria

7. Alcohol fermentation
ఆల్కహాలిక్ణ్వ ప్రక్రియ

8. Electron transport chain
ఎలక్ట్రాన్రవాణాగొలుసు.

Section-B

Answer all of the following questions **5X10=50M**
Draw labelled diagrams wherever necessary

9. a) Explain classification of Carbohydrates.
కార్బోహైడ్రేట్ల వర్గీకరణను వివరించండి.

Or

b) Explain the structure of protein.
ప్రొటెయిన్ల నిర్మాణాన్ని వివరించండి

10. a)Explain Enzyme Classification along with example for each class.
ఎంజైమ్వర్గీకరణను వివరించండి. ప్రతితరగతికి ఉదాహరణ వ్రాయండి .

Or

b) Explain competitive, noncompetitive, and uncompetitive enzyme inhibition.
పోటీ, పోటీలేనిది ,మరియు పోటీపడని ఎంజైమ్నిరోధం వివరించండి

11. a)Write principle and application of Paper chromatography.
పేపర్క్రోమాటోగ్రఫీ యొక్క సూత్రం మరియు అనువర్తనాన్ని వ్రాయండి

Or

b) Write principle and applications of colorimeter.
కలర్మీటర్సూత్రం మరియు అనువర్తనాన్ని వ్రాయండి

12. a) Explain nutritional classification of bacteria.
బాక్టీరియా యొక్క పోషకవర్గీకరణను వివరించండి

Or

b) Explain different method for measuring microbial growth.
సూక్ష్మజీవుల పెరుగుదలను కొలిచే వివిధపద్ధతులను వివరించండి

13. a) Explain the significance of TCA cycle along with diagram.
రేఖాచిత్రంతోపాటు TCA చక్రం యొక్క ప్రాముఖ్యతను వివరించండి

Or

b) Give outlines of Oxygenic and Anoxygenic Bacterial Photosynthesis.
ఆక్సిజనిక్మరియు అనోక్సిజనిక్బాక్టీరియ ల్పోటోసింథసిస్యొక్క బాహ్య రూపాలను ఇవ్వండి

MODEL QUESTION COURSE
Semester End Examination - Practical

Time: 3hrs **Max. Marks: 50M**

MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY LAB

Major Experiment **1X20=20M**

1.Estimate the amount of protein present in given test sample by biuret method and write down principle, procedure and report

Minor Experiment **1X10=10M**

2.Write down Principle, procedure and perform paper chromatography to separate the mixture of compounds in given test sample?

3.Identification of spotters **5X2=10M**

A. Bacterial growth curve
B. Structure of ribose sugar
C. Lock and key model
D. Synchronous culture growth
E. Gel electrophoresis unit

4.Viva-Voce **05M**

5.Record **05M**

Total Marks **50M**

MODEL QUESTION PAPER (Semester End)
B. Sc DEGREE EXAMINATIONS
SEMESTER - III
Course 3: MOLECULAR BIOLOGY AND MICROBIAL GENETICS

Time : 3Hrs **Max. Marks:75**

Section-A

Answer any *five* of the following questions 5x5=25M

Draw labelled diagrams wherever necessary

1. Central dogma
   సెంట్రల్డొగ్మా

2. RNA as genetic material
   జన్యుపదార్థంగాఆర్ఎన్ఏ

3. Muton,Recon, Cistron
   ముటన్, రీకాన్, సిస్ట్రాన్

4. Genetic code
   జన్యుకోడ్

5. UV rays as mutagens.
   మ్యుటేషన్లో UV కిరణాలపాత్ర

6. Conjugation in bacteria
   బ్యాక్టీరియాలోసంయోగం

7. PCR
   పిసిఆర్

8. Plasmid vectors
   ప్లాస్మిడ్వెక్టర్స్

Section-B

Answer all of the following questions **5X10=50M**
Draw labelled diagrams wherever necessary

9. a). Explain Watson and crick model of DNA with a neatly labeled diagram

చక్కగా లేబుల్చేసిన రేఖాచిత్రంతో DNA యొక్క వాట్సన్మ రియుక్రిక్మోడల్ను వివరించండి

Or

b). Define RNA. Write about different types of RNA
RNA నునిర్వచించండి. వివిధర కాలైన RNA గురించి వ్రాయండి

10. a). Explain DNA as genetic material with an experimental proof.
ప్రయోగాత్మకరుజువుతో DNA నుజన్యుపదార్థంగావివరించండి

Or

b). Explain the proof of semi conservative replication of DNA (Meselson & Stahl experiment).
DNA
యొక్కసెమీకన్జర్వేటివ్రెప్లికేషన్కొక్కరుజువునువివరించండి(మెసెల్సన్&స్టాల్ప్రయోగం)

11. a). Explain important steps in Protein Synthesis with a diagram.
రేఖాచిత్రంతోప్రోటీన్సంశ్లేషణలోముఖ్యమైనదశలనువివరించండి

Or

b). Explain the functioning of lac operon.
లాక్ఒపెరాన్పని తీరును వివరించండి

12. a). Explain different types of chromosomal aberrations &point mutations.
వివిధరకాలైన క్రోమోజోమ్ ఉల్లంఘనలు మరియు పాయింట్మ్యుటేషన్లను వివరించండి

Or

b). Explain Generalized &Specialized transduction.
సాధారణ మరియు ప్రత్యేకమైనట్రాన్స్డక్షన్ని వరించండి

13. a). Write the basic steps involved in Gene Cloning.
జీన్క్లోనింగ్లోపాల్గొన్న ప్రాథమికదశలను వ్రాయండి.

Or

b). What are the application of genetic engineering in Agriculture ,Medicine& Industry.
వ్యవసాయం, మందులు, మరియు పరిశ్రమలలో జన్యుఇంజనీరింగ్కొక్క అనువర్తనంఏమిటి.

MODEL QUESTION COURSE
Semester End Examination - Practical

Time: 3hrs **Max. Marks: 50M**

MOLECULAR BIOLOGY AND MICROBIAL GENETICS

Major Experiment **1X20=20M**

1. Estimate the amount of DNA by spectrophotometer and write down principle, procedure and report

Minor Experiment **1X10=10M**

2. Write down Principle, procedure and perform induction of mutations in bacteria by UV light

3. Identification of spotters **5X2=10M**

A. pBR322
B. Structure of DNA polymerase
C. Structure of tRNA
D. PCR
E. Griffith Experiment

4. Viva-Voce **05M**

5. Record **05M**

Total Marks **50M**

MODEL QUESTION PAPER (Semester End)
B. Sc DEGREE EXAMINATIONS
SEMESTER - IV
Course 4: IMMUNOLOGY AND MEDICAL MICROBIOLOGY

Time : 3Hrs **Max. Marks:75**

Section-A

Answer any ***five*** of the following questions 5x5=25M

Draw labelled diagrams wherever necessary

1.Thymus
థైమస్

2.Macrophage
మాక్రోఫేజ్

3.Hypersensitivity reactions
తీవ్రసున్నితత్వప్రతిచర్యలు

4.MHC molecules
ఒంహెచ్సీఅణువులు

5.Nosocomial infections
6నోసోకోమియల్ఇన్ఫెక్షన్లు

6. ELISA
ఎలిసా

7. Corona virus
కరోనావైరస్

8. Interferons
ఇంటర్ఫెరాన్స్

Section-B

Answer all of the following questions 5X10=50M

Draw labelled diagrams wherever necessary

9. a). Explain types of immunity
రోగనిరోధకశక్తిని వివరించండి

Or

b). Write structure and functions of cells of immune system?
రోగనిరోధకవ్యవస్థయొక్కకణాలనిర్మాణంమరియువిధులనువ్రాయాలా?

10.a). Explain antibody structure and types
యాంటీబాడీనిర్మాణం మరియు రకాలను వివరించండి

Or

b).Write cell mediated immune response
సెల్మధ్యవర్తిత్వ రోగనిరోధక ప్రతిస్పందనరాయాలా?

11. a).Explain causal organism, pathogenesis, epidemiology, prevention and control of tuberculosis

కారణజీవి, వ్యాధికారక, ఎపిడెమియాలజీ, నివారణ మరియు నియంత్రణ గురించి వివరించండి

Or

b).Explain normal flora of human body
మానవశరీరం యొక్క సాధారణవృక్షజాలం గురించివివరించండి?

12. a). Write a note on collection and transportation of clinical samples

క్లినికల్నమూనాల సేకరణ మరియు రవాణాపై గమనికరాయాలా

Or

b). Explain methods for identification of clinical samples by serological tests?
సెరోలాజికల్పరీక్షల ద్వారా క్లినికల్నమూనాలను గుర్తించే పద్ధతులను వివరించండి?

13. a). Write a note on vaccines

వ్యాక్సిన్లపైగమనికరాయాలా

Or

b). Explain the tests for antimicrobial susceptibility
యాంటీమైక్రోబయల్సెన్సిటివిటీకోసంపరీక్షలుఏమిటోవివరించండి

MODEL QUESTION COURSE
Semester End Examination - Practical

Time: 3hrs **Max. Marks: 50M**

IMMUNOLOGY AND MEDICAL MICROBIOLOGY

Major Experiment **1X20=20M**

1. Identify the given bacterial culture by IMViC tests and write down principle, procedure and report

Minor Experiment **1X10=10M**

2. Determine the blood grouping and Rh typing and write down Principle, procedure and report

3. **Identification of spotters** **5X2=10M**

A.Macrophage
B.Chickenpox virus
C.Structure of Antibody A
D.Schizont
E. Spleen

4. **Viva-Voce** **05M**

5. **Record** **05M**

Total Marks **50M**

MODEL QUESTION PAPER (Semester End)
B. Sc DEGREE EXAMINATIONS
SEMESTER - IV
Course 5: MICROBIAL ECOLOGY AND INDUSTRIAL MICROBIOLOGY

Time : 3Hrs **Max. Marks:75**

Section-A

Answer any ***five*** of the following questions 5x5=25M

Draw labelled diagrams wherever necessary

1. Mutualism
పరస్పరవాదం

2. Azatobcater
అజోటోబాక్టర్

3. Xenobiotics
జెనోబయోటిక్స్

4. Cell emplacement
సెల్ఎమ్ప్లాస్మెంట్

5. Crowded plate
రద్దీప్లేట్

6. Centrifugation
కేంద్రీకరణ

7. SCP
ఎస్సిపి

8. Yogurt
పెరుగు

Section-B

Answer all of the following questions 5X10=50M

Draw labelled diagrams wherever necessary

9. a). Explain role of microorganism in nitrogen cycle
నత్రజనిచక్రంలో సూక్ష్మజీవుల పాత్రను వివరించండి

Or

b). Explain plant growth promoting microorganism
సూక్ష్మజీవులను ప్రోత్సహించే మొక్కల పెరుగుదలను వివరించండి

10. a).Explain municipal waste treatment
మున్సిపల్వ్యర్థాలనుశుద్ధిచేయండి

Or

b). Write intrinsic and extrinsic factors that affect the microbial growth in food
ఆహారంలోసూక్ష్మజీవుల పెరుగుదలను ప్రభావితంచేసే అంతర్గత మరియు బాహ్యకారకాలను వ్రాయండి

11. a). Write a note on industrially important microorganisms
పారిశ్రామికంగాముఖ్యమైనసూక్ష్మజీవులపైఒకగమనికరాయండి

Or

b). Explain methods for strain improvement
జాతిమెరుగుదలకోసం పద్ధతులను వివరించండి

12. a). Write types of fermentation processes
కిణ్వప్రక్రియప్రక్రియలరకాలనువ్రాయండి

Or

b). Explain techniques involved in downstream processing
దిగువప్రాసెసింగ్లోపాల్గొన్న పద్ధతులను వివరించండి

13. a). Write a note on industrial production of ethanol and its applications
ఇథనాల్యొక్కపారిశ్రామికఉత్పత్తిమరియుదానిఅనువర్తనాలపైఒకగమనికరాయండి

Or

b).Write a note on industrial production of Vitamin B12
విటమిన్ 12 యొక్కపారిశ్రామికఉత్పత్తిపైఒకగమనికరాయండి

MODEL QUESTION COURSE
Semester End Examination - Practical

Time: 3hrs **Max. Marks: 50M**

MICROBIAL ECOLOGY AND INDUSTRIAL MICROBIOLOGY

Major Experiment **1X20=20M**

1. Estimate the amount of citric acid produced by fermentation and write down principle, procedure and report

Minor Experiment **1X10=10M**

2. Isolate the amylase producing bacteria from soil, write down Principle, procedure and report

3. **Identification of spotters** **5X2=10M**

A.SCP
B.spoilage vegetables by fungi
C.Yogurt
D.Ground nut rust
E. Rhizobia

4. **Viva-Voce** **05M**

5. **Record** **05M**

Total Marks **50M**

UG Program (4 Years Honors)
CBCS- 2020-21

B.Sc
CHEMISTRY

Syllabus and Model Question Papers

STRUCTURE OF CHEMISTRY CORE SYLLABUS

Sem	Course No	Course Name	Course Type (T/P/L)	Hrs/Week	Credits	Max. Marks	Max. Marks
				Science: 4+2	Science: 4+1	Count/Internal/ Mid Assessment	Sem- End Exam
I	1	Inorganic and Physical Chemistry	T	4	4	25	75
	2	Practical – I Analysis of SALT MIXTURE	L	2	1	-	50
II	3	Organic and General Chemistry	T	4	4	25	75
	4	Practical – II Volumetric Analysis	L	2	1	-	50
III	5	Organic Chemistry and Spectroscopy	T	4	4	25	75
	6	Practical – III Organic preparations and IR Spectral Analysis	L	2	1	-	50
IV	7	Inorganic, Organic and Physical Chemistry	T	4	4	25	75
	8	Practical – IV Organic Qualitative analysis	L	2	1	-	50
	9	Inorganic and Physical Chemistry	T	4	4	25	75
	10	Practical-V Course Conductometric and Potentiometric Titrimetry	L	2	1	-	50

B.Sc.	Semester - I	Credits: 4
Course: 1	Inorganic and Physical Chemistry	Hrs/Wk: 4

Course outcomes:

At the end of the course, the student will be able to;

- Understand the basic concepts of p-block elements
- Explain the difference between solid, liquid and gases in terms of intermolecular interactions.
- Apply the concepts of gas equations, pH and electrolytes while studying other chemistry courses.

UNIT I:
INORGANIC CHEMISTRY :Chemistry of p-block elements

Group 13: Preparation & structure of Diborane, Borazine

Group 14: Preparation, classification and uses of silicones

Group 15: Preparation & structures of Phosphonitrilic halides $\{(PNCl_2)_n$ where n=3, 4

Group 16: Oxides and Oxoacids of Sulphur (structures only)

Group 17: Pseudohalogens, Structures of Interhalogen compounds.

UNIT II:

1. Chemistry of d-block elements:

Characteristics of d-block elements with special reference to electronic configuration, variable valence, magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states.

2. Chemistry of f-block elements:

Chemistry of lanthanides - electronic structure, oxidation states, lanthanide contraction, consequences of lanthanide contraction, magnetic properties. Chemistry of actinides - electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

3. Theories of bonding in metals:

Valence bond theory and Free electron theory, explanation of thermal and electrical conductivity of metals based on these theories, Band theory- formation of bands, explanation of conductors, semiconductors and insulators.

UNIT III: PHYSICAL CHEMISTRY

Solid state

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Miller indices, Definition of lattice point, space lattice, unit cell. Bravais lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Powder method. Defects in crystals. Stoichiometric and non-stoichiometric defects.

UNIT IV:

1. Gaseous state

van der Waal's equation of state. Andrew's isotherms of carbon dioxide, continuity of state. Critical phenomena. Relationship between critical constants and vander Waal's constants. Lawof corresponding states. Joule- Thomson effect. Inversion temperature.

2.Liquid state

Liquid crystals, mesomorphic state. Differences between liquid crystal and solid/liquid. Classification of liquid crystals into Smectic and Nematic. Application of liquid crystals as LCD devices.

UNIT V:SOLUTIONS, IONIC EQUILIBRIUM & DILUTE SOLUTIONS

1. Solutions

Azeotropes- HCl-H_2O system and ethanol-water system. Partially miscible liquids-phenol- water system. Critical solution temperature (CST), Effect of impurity on consulate temperature. Immiscible liquids and steam distillation. Nernst distribution law. Calculation of the partition coefficient. Applications of distribution law.

2. Ionic equilibrium

Ionic product, common ion effect, solubility and solubility product. Calculations based on solubility product.

3. Dilute solutions

Colligative properties- RLVP, Osmotic pressure, Elevation in boing point and depression in freezing point. Experimental methods for the determination of molar mass of a non-volatile solute using osmotic pressure, Elevation in boiling point and depression in freezing point. Abnormal colligative properties. Van't Hoff factor.

Co-curricular activities and Assessment Methods

1. Continuous Evaluation: Monitoring the progress of student's learning
2. Class Tests, Worksheets and Quizzes
3. Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality
4. Semester- end Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the semester.

REFERENCE BOOKS

1. Principles of physical chemistry by Prutton and Marron
2. Solid State Chemistry and its applications by Anthony R. West
3. Text book of physical chemistry by K L Kapoor
4. Text book of physical chemistry by S Glasstone
5. Advanced physical chemistry by Bahl and Tuli
6. Inorganic Chemistry by J. E. Huheey
7. Basic Inorganic Chemistry by Cotton and Wilkinson
8. A textbook of qualitative inorganic analysis by A.I. Voge
9. Atkins, P.W.&Paula,J.deAtkin'sPhysicalChemistryEd.,OxfordUniversityPress 10thEd(2014).
10. Castellan, G.W.Physical Chemistry4th Ed. Narosa (2004).
11. Mortimer, R. G.Physical Chemistry3rdEd. Elsevier: NOIDA, UP(2009)
12. Barrow, G.M. PhysicalChemistry

B.Sc.	Semester - I	Credits: 1
Course: 1(L)	Analysis of SALT MIXTURE LAB	Hrs/Wk: 2

LABORATORY COURSE -I **30**hrs (2 h / w)

Qualitative inorganic analysis (Minimum of Six mixtures should be analyzed) 50 M

Course outcomes:

At the end of the course, the student will be able to;

- Understand the basic concepts of qualitative analysis of inorganic mixture
- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis

Analysis of SALT MIXTURE **50 M**

Analysis of mixture salt containing two anions and two cations (From two different groups) from the following:

Anions: Carbonate, Sulphate, Chloride, Bromide, Acetate, Nitrate, Borate, Phosphate.

Cations: Lead, Copper, Iron, Aluminium, Zinc, Nickel, Manganese, Calcium, Strontium, Barium, Potassium and Ammonium.

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION

SEMESTER: I

Course 1: INORGANIC & PHYSICAL CHEMISTRY

Time: 3Hrs. **Max. Marks: 75**

Section - A

Answer any **FIVE** of the following questions. Each carries **FIVE** marks **5 X 5 = 25 M**

1. Explain the preparation & structures of Phosphonitrilic compounds.
2. Explain in brief, catalytic properties & stability of various oxidation states of d- block elements.
3. Write a short note on Bravais lattices and crystal systems.
4. What are Semitic & Nematic liquid Crystals? Explain.
5. Write an account on Common ion effect & Solubility product.
6. Describe Andrew's isotherms of carbon dioxide.
7. Explain Actinide Contraction.
8. Explain the structure of Borazine.

Section - B

Answer **ALL** the questions. **5 X 10 = 50 M**

9 a). Explain Classification, Preparations & uses of Silicones

(OR)

b). (i) What are Pseudo halogens.

(ii) Explain the Structures of any one AX_3 & AX_5 interhalogen compounds.

10 a). What is Lanthanide Contraction? Explain the Consequences of Lanthanide Contraction.

(OR)

b). (i) Explain the magnetic properties of d- block elements.

(ii) Explain about Conductors, Semi-Conductors & Insulators using Band Theory.

11. a). Write an essay on Crystal defects.

(OR)

b). What is Bragg's Law? Explain the determination of structure of a crystal by powder method.

12. a). Derive the relationship between Critical constants & vander Waal constants

(OR)

b). (i) Write any 5 differences between liquid crystals & liquids, solids

(ii) Write the applications of Liquid crystals.

13. a). Explain Nernst distribution Law. Explain its applications

(OR)

b). What are colligative properties? Write experimental methods for determination of molar mass of a non-volatile solute by using Elevation in boiling point & depression in freezing point.

B.Sc.	Semester - II	Credits: 4
Course: 2	Organic & General Chemistry	Hrs/Wk: 4

Course outcomes:

At the end of the course, the student will be able to;

- Understand and explain the differential behavior of organic compounds based on fundamental concepts learnt.
- Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved
- Learn and identify many organic reaction mechanism including Free Radical Substitution, Electrophonic Addition and Electrophonic Aromatic Substitution.
- Correlateanddescribethestereochemicalpropertiesoforganiccompoundsand reactions.

UNIT I: ORGANIC CHEMISTRY
Recapitulation of Basics of Organic Chemistry
Carbon-Carbon sigma bonds (Alkanes and Cycloalkanes)

General methods of preparation of alkanes- Wurtz and Wurtz-Fittig reaction, Corey House synthesis, physical and chemical properties of alkanes, Isomerism and its effect on properties, Free radical substitutions; Halogenations, concept of relative reactivity v/s selectivity. Conformational analysis of alkanes (Conformations, relative stability and energy diagrams of Ethane, Propane and butane) General molecular formulae of cycloalkanes and relative stability, Baeyer strain theory, Cyclohexane conformations with energy diagram, Conformations of monosubstituted cyclohexane.

UNIT II: Carbon-Carbon pi Bonds(Alkenes and Alkynes)
General methods of preparation, physical and chemical properties. Mechanism of E1, E2, E1 cb reactions, Saytzeff and Hofmann eliminations, Electrophilic Additions ,mechanism (Markovnikov/Anti Markovnikov addition) with suitable examples,, *syn and anti-addition*; additionofH_2,X_2, HX. Oxymercuration, demercuration, hydroboration-oxidation, ozonolysis, hydroxylation, Diels Alderreaction,1,2- and1,4-addition reactions in conjugated dienes. Reactions of alkynes; acidity, electrophilic and nucleophilic additions, hydration to form carbonyl compounds, Alkylation of terminal alkynes.

UNIT III: Benzene and its reactivity
Concept of aromaticity, Huckel's rule - application to Benzenoid (Benzene, Naphthalene) and Non - Benzenoid compounds (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation) Reactions - General mechanism of electrophilic aromatic substitution, mechanism of nitration, Friedel- Craft's alkylation and acylation. Orientation of aromatic substitution - ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and Phenolic).
Orientation of

i. Amino, methoxy and methyl groups
ii. Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups
iii. Halogens (Explanation by taking minimum of one example from each type)

UNIT IV: GENERAL CHEMISTRY
1. Surface chemistry and chemical bonding Surface chemistry
Colloids- Coagulation of colloids- Hardy-Schulze rule. Stability of colloids, Protection of Colloids, Gold number.
Adsorption-Physical and chemical adsorption, Langmuir adsorption isotherm, applications of adsorption.

2. Chemical Bonding

Valence bond theory, hybridization, VB theory as applied to ClF3**,**Ni(CO**)4,** Molecular orbital theory -LCAO method, construction of M.O. diagrams for homo-nuclear and hetero-nuclear diatomic molecules(N2,O2,CO and NO).

3. HSAB

Pearson's concept, HSAB principle & its importance, bonding in Hard-Hard and Soft-Soft combinations.

UNIT V:

Stereochemistry of carbon compounds

Molecular representations- Wedge, Fischer, Newman and Saw-Horse formulae. **Optical isomerism**: Optical activity- wave nature of light, plane polarised light, optical rotation and specific rotation. Chiral molecules- definition and criteria (Symmetry elements)- Definition of enantiomers and diastereomers – Explanation of optical isomerism with examples- Glyceraldehyde, Lactic acid, Alanine, Tartaric acid, 2,3-dibromopentane. D,L, R,S and E,Z- configuration with examples. Definition of Racemic mixture – Resolution of racemic mixtures (any 3 techniques)

Co-curricular activities and Assessment Methods Continuous Evaluation: Monitoring the progress of student's learning Class Tests, Worksheets and Quizzes Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality

Semester-end Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the semester.

REFERENCE BOOKS:

1. Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
2. Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
3. Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
4. Eliel, E. L. & Wilen, S. H. Stereochemistry of Organic Compounds; Wiley: London, 1994. Kalsi, P. S. Stereochemistry Conformation and Mechanism; New Age International, 2005.

Practical:

1. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000).
2. Ahluwalia, V.K. & Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000).
3. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)

Additional Resources:

1. Solomons, T. W. G.; Fryhle, C. B. &Snyder, S. A. Organic Chemistry, 12th Edition, Wiley. Bruice, P. Y. Organic Chemistry, Eighth Edition, Pearson.
2. Clayden, J.; Greeves, N.&Warren, S. Organic Chemistry, Oxford. Nasipuri, D. Stereochemistry of Organic Compounds: Principles and Applications, Third Edition, NewAge International.
3. Gunstone, F. D. Guidebook to Stereochemistry, Prentice Hall Press, 1975.

B.Sc.	Semester - II	Credits: 1
Course: 2(L)	Volumetric Analysis Lab	Hrs/Wk: 2

Course outcomes:

At the end of the course, the student will be able to;

- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Understand and explain the volumetric analysis based on fundamental concepts learnt in ionic equilibria
- Learn and identify the concepts of a standard solutions, primary and secondary standards
- Facilitate the learner to make solutions of various molar concentrations.
- This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.

Volumetric analysis **50 M**

1. Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.
2. Determination of Fe (II) using $KMnO_4$ with oxalic acid as primary standard.
3. Determination of Cu (II) using $Na_2S_2O_3$ with $K_2Cr_2O_7$ as primary standard.
4. Estimation of water of crystallization in Mohr's salt by titrating with $KMnO_4$

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: II

Course 2: ORGANIC & GENERAL CHEMISTRY

Time: 3Hrs. **Max. Marks: 75**

Section - A

Answer any **FIVE** of the following questions. Each carries **FIVE** marks **5X5= 25M**

1. Write different conformations of n-butane. Explain their relative stability.
2. Explain 1,2- & 1,4- addition reactions of conjugated dienes.
3. Explain the orientation effect of halogens on mono substituted benzene.
4. Explain the mechanism of $E1^{CB}$ elimination reaction.
5. Explain the structure of ClF_3 by Valence Bond theory.
6. What are Hard & soft acids & bases? Explain with examples.
7. Draw the Wedge, Fischer, Newman & saw-Horse representations for Tartaric acid.
8. Define Enantiomers and Diastereomers and give two examples for each.

Section - B

Answer **ALL** the questions. Each carries **TEN** marks **5 X 10 = 50 M**

9 (a). i) Write the preparation of alkanes by Wurtz and Corey-House reaction.
ii) Explain Halogenation of alkanes. Explain the reactivity and selectivity in free radical substitutions.

(OR)

(b).(i) Explain Baeyer Strain Theory
(ii) Draw the conformations of Cyclohexane and explain their stability by drawing energy profile diagram.

10 (a). (i) Write any two methods of preparation of alkenes.
(ii) Explain the mechanism of Markovnikov and Anti-Markovnikov addition of HBr to alkene.

(OR)

(b). (i) Explain the acidity of 1-alkynes
(ii) How will you prepare acetaldehyde and acetone from alkynes?
(iii) Write alkylation reaction of terminal alkne.

11.(a). Define Huckel rule of aromatic compounds. What are benzenoid and non- benzenoid aromatic compounds? Give examples.

(OR)

(b). Explain the mechanisms of Nitration and Friedel-Craft's alkylation of Benzene.

12.(a). (i) Define Hardy-Schulze rule & Gold number.
(ii) Differentiate Physisorption Or Chemisorption. Explain Langmuir adsorption isotherm.

(OR)

(b). Construct the Molecular Orbital diagram for O_2 and NO and explain their bond order and magnetic property.

13.(a). Define racemic mixture. Explain any two techniques for resolution of racemic mixture.

(OR)

(b).(i) Define Optical activity and Specific rotation.
(ii)Draw the R- & S- isomers of Alanine, Glyceraldehyde.
(iii)Write the E- & Z- isomers of 2-butene.

B.Sc.	Semester - III	Credits: 4
Course: 3	Organic chemistry & Spectroscopy	Hrs/Wk: 4

Course outcomes:

At the end of the course, the student will be able to;

- Understand preparation, properties and reactions of haloalkanes, haloarenes and oxygen containing functional groups.
- Use the synthetic chemistry learnt in this course to do functional group transformations.
- To propose plausible mechanisms for any relevant reaction

UNIT I: ORGANIC CHEMISTRY

Chemistry of Halogenated Hydrocarbons: Alkyl Halides: Methods of preparation and properties, nucleophilic substitution reactions– SN1, SN2 and SNi mechanisms with stereo chemical aspects and effect of solvent etc.; nucleophilic substitution vs. elimination, Williamson's synthesis. Aryl Halides: Preparation (including preparation from diazonium salts) and properties, nucleophilic aromatic substitution; SN Ar, Benzyne mechanism. Relative reactivity of alkyl, allyl, benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

1. Alcohols & Phenols

Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvet Blanc Reduction; Oxidation Of Diols By Periodic Acid Andlead Tetraacetate,Pinacol- Pinacolone Rearrangement;

Phenols: Preparation And Properties; Acidity And Factors Affecting It, Ring substitution reactions, Reimer–Tiemann and Kolbe's–Schmidt Reactions, Fries and Claisen Rearrangement with mechanism;

UNIT II:

Carbonyl Compounds: Structure, reactivity, preparation and properties; Nucleophilic Addition, Nucleophilic Addition-elimination reactions with ammonia derivatives Mechanisms of Aldol and Benzoin Condensation, Claisan-Schmidt, Perkin, Cannizzaro and Wittig reaction, Beckmann Haloform Reaction And Baeyer Villiger oxidation, α- substitution reactions, oxidations and reductions (Clemmensen, wolf –kishner, with $LiAlH_4$ &$NaBH_4$). Addition Reactions Of α, β-unsaturated carbonyl compounds: Michael Addition. Active Methylene Compounds: Keto-enol tautomerism. Preparation And Synthetic Applications Diethyl malonate and ethyl acetoacetate.

UNIT III:

Carboxylic Acids and their Derivatives : General methods of preparation, physical properties and reactions of monocarboxylic acids, effect ofsubstituent acidic strength. Typical reactions of icarboxylic acids, hydroxy acids and unsaturated acids. Preparation And Reactions Of Acid Chlorides, anhydrides, esters and amides; Comparative study of nucleophilic substitution at acyl group-Mechanism of acidic and alkaline hydrolysis of esters, Claisen Condensation, Reformatsky reactions and Curtius Rearrangement Reactions involving H, OH and COOH groups- salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, decarboxylation by Schimdt reaction, Arndt- Eistert synthesis, halogenation by Hell- Volhard- Zelinsky reaction.

UNIT IV: SPECTROSCOPY

Molecular Spectroscopy:Interactionofelectromagneticradiationwithmoleculesandvarioustypesof spectra;

Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution.

Vibrational Spectroscopy: Classical Equation Of Vibration, computation of force constant, Harmonic and anharmonic oscillator, Morse Potential curve, vibrational degrees of freedom for polyatomic molecules, modes of vibration. Selection rules for vibrational transitions, Fundamental Frequencies, overtones and hot bands.

Electronic spectroscopy: Energy levels of molecular orbitals (σ, π, n). Selection rules for electronic spectra. Types of electronic transitions in molecules, effect of conjugation. Concept of chromophore. bathochromic and hypsochromic shifts. Beer-Lambert's law and its limitations.

Nuclear Magnetic Resonance (NMR) spectroscopy: Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT V: Application of Spectroscopy to Simple Organic Molecules

Application of visible, ultraviolet and Infrared spectroscopy in organic molecules. Application of electronic spectroscopy and Woodward rules for calculating λ_{max} of conjugated dienes and α,β – unsaturated compounds.

Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on >C=O stretching absorptions).

Co-curricular activities and Assessment Methods Continuous Evaluation: Monitoring The Progress Of student's learning Class Tests, Worksheets and Quizzes, Presentations, Projects and Assignments Group Discussions: Enhances Critical Thinking Skills And personality

Semester-end Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the semester.

REFERENCE BOOKS:

1. A TextBook of Organic Chemistry by Bahl and Arunbahl
2. A Textbook of Organic chemistry by I L FinarVol I
3. Organic chemistry by Bruice
4. Organic chemistry by Clayden
5. Spectroscopy by William Kemp
6. Spectroscopy by Pavia
7. Organic Spectroscopy by J. R. Dyer
8. Elementary organic spectroscopy by Y.R. Sharma
9. Spectroscopy by P.S.Kalsi
10. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
11. Spectrometric Identification of Organic Compounds by Robert M Silverstein, Francis X Webster
12. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. & Tatchell, A.R. Practical Organic Chemistry,5th Ed. Pearson (2012)
13. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry:Preparation and Quantitative Analysis, University Press (2000)

B.Sc.	Semester - III	Credits: 1
Course: 3(L)	Organic preparations and IR Spectral Analysis Lab	Hrs/Wk: 2

Course outcomes:

On the completion of the course,the student will be able to do the following**:**

1. how to use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. how to calculate limiting reagent, theoretical yield, and percent yield
3. how to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately
4. how to dispose of chemicals in a safe and responsible manner
5. how to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
6. how to create and carry out work up and separation procedures
7. how to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner

Organic preparations: 40M

i. Acetylation of one of the following compounds:

amines (aniline, o-, m-, p- toluidine and o-, m-, p-anisidine) and phenols (β-naphthol, vanillin, salicylic acid) by any one method:

a. Using conventional method.

b. Using green approach

ii. Benzoylation of one of the following amines

(aniline, o-, m-, p- toluidine and o-, m-, p-anisidine)

a. Nitration of any one of the following:Acetanilide/nitrobenzene by conventional method

b. Salicylic acid by green approach (using ceric ammonium nitrate).

IR Spectral Analysis 10M

IR Spectral Analysis of the following functional groups with examples

a) Hydroxyl groups

b) Carbonyl groups

c) Amino groups

d) Aromatic groups

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: III
Course 3: ORGANIC CHEMISTRY & SPECTROSCOPY

Time: 3Hrs. **Max. Marks: 75**

Section - A

Answer any **FIVE** of the following questions. Each carries **FIVE** marks. **5x5 25M**

1. Discuss two methods for preparation of aryl halides.
2. Explain the mechanism for Pinacol-Pinacolone rearrangement
3. Discuss the mechanism for Baeyer-villiger oxidation reaction.
4. Explain the effect of substituents on acidic strength of mono-carboxylic acids.
5. Write the mechanism for Claisen Condensation reaction.
6. Write the selection rules in rotational spectroscopy.
7. Explain Spin – Spin coupling and Coupling Constant.
8. Explain types of electronic transitions in UV spectroscopy.

Section - B

Answer **ALL** the questions. Each carries **TEN** marks **5 X 10 = 50 M**

9 (a). Give the mechanism & stereochemistry of SN^1 & SN^2 reactions of alkyl halides with suitable example.

(OR)

(b). Explain the following reactions with mechanism.
(i) Reimer-Tiemann reaction (ii) Fries rearrangement.

10 (a). Discuss the mechanism for following reactions.
(i) Perkin reaction. (ii) Cannizaro reaction

(OR)

(b). Write the preparation and any three synthetic applications of diethyl malonate.

11.(a). Explain acid and base hydrolysis reaction of esters with mechanism.

(OR)

(b). Explain the mechanisms of Curtius rearrangement & Arndt –Eistert reaction.

12.(a). (i) Write a note on vibrational degrees of freedom for polyatomic molecules.
(ii) Explain different modes of vibrations & selection rules in IR spectroscopy.

(OR)

(b).(i) Define Bathochromic shift. Explain the effect of conjugation in U.V. spectroscopy.
(ii) Discuss the principle of NMR spectroscopy.

13.(a). Write Woodward-Fieser rules for calculating λmax for conjugated dienes and α,β – unsaturated carbonyl compounds , and apply them for one example each.

(or)

(b).(i) What is Fingerprint region? Explain its significance with an example.
(ii) Write IR spectral data for any one alcohol, aldehyde and ketone

B.Sc.	Semester - IV	Credits: 4
Course: 4	Inorganic, Organic and Physical Chemistry	Hrs/Wk: 4

Course outcomes:

At the end of the course, the student will be able to;

- To learn about the laws of absorption of light energy by molecules and subsequent photochemical reactions.
- To understand the concept of quantum efficiency and mechanisms of photochemical reactions.

UNIT I:

Organ metallic Compounds: Definition and classification of organometallic compounds on the basis of bond type, Concept of hapticity of organic ligands. Metal Carbonyls:18electronrule, electron count of mononuclear, polynuclear and substituted metal carbonyls of 3d series. General methods of preparation of mono and binuclear carbonyls of 3d series. P-acceptor behaviour of carbon monoxide. Synergic effects (VB approach) - (MO diagram of CO can be referred to for synergic effect to IR frequencies).

UNIT II:

Carbohydrates: Occurrence, classification and their biological importance, Monosaccharides: Constitution and absolute configuration glucose and fructose, epimers and anomers, mutarotation, determination of ring size of glucose and fructose, Haworth Projection And Conformational Structures ;Interconversions of aldoses and ketoses; Kiliani-Fischer synthesis and Ruff degradation; Disaccharides– Elementary Treatment Of Maltose, lactose and sucrose. Polysaccharides–Elementary Treatment Of starch.

UNIT III:

Amino acids and proteins: Introduction: Definition of Amino acids, classification of Amino acids into alpha, beta, and gamma amino acids. Natural and essential amino acids - definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, valine and leucine) by following methods: a) from halogenated carboxylic acid b) Gabriel Phthalimide synthesis c) strecker's synthesis.

Physical properties: Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point.

Chemical properties: General reactions due to amino and carboxyl groups - lactams from gamma and delta amino acids by heating- peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

Heterocyclic Compounds: Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1, 4, - dicarbonyl compounds, Paul-Knorr synthesis. Properties: Acidic character of pyrrole - electrophilic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan. Pyridine – Structure - Basicity - Aromaticity- Comparison with pyrrole- one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

UNIT IV:

Nitrogen Containing Functional Groups: Preparation, properties and important reactions of nitro compounds, amines and diazonium salts.

1. Nitro hydrocarbons

Nomenclature and classification-nitro hydrocarbons, structure -Tautomerism of nitroalkanes leading to aci and keto form, Preparation of Nitroalkanes, reactivity -halogenation, reaction with HONO (Nitrous acid), Nef reaction and Mannich reaction leading to Micheal addition and reduction.

2.Amines:

Introduction, classification, chirality in amines (pyramidal inversion), importance and general methods of preparation.

Properties : Physical properties, Basicity of amines: Effect of substituent, solvent and steric effects. Distinction between Primary, secondary and tertiary amines using Hinsberg's Method And Nitrous Acid. Discussion of the following reactions with emphasis on the mechanistic pathway: Gabriel Phthalimide synthesis, Hoffmann- Bromamide Reaction,Carbylamine Reaction, Mannich reaction, Hoffmann's exhaustive methylation, Hofmann-elimination reaction and Cope elimination.

Diazonium Salts: Preparation and synthetic applications of diazonium salts including preparation of arenes, haloarenes, phenols, amino and nitro compounds. Coupling Reactions Of Diazonium Salts (preparation of azo dyes).

UNIT V:

Photochemistry: Difference between thermal and photochemical processes, Laws of photochemistry- Grothus- Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield- Photochemical reaction mechanism- hydrogen- chlorine and hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Jablonski diagram, Photosensitized reactions- energy transfer processes (simple example).

Thermodynamics: The first law of thermodynamics-statement, definition of internal energy and enthalpy, Heat capacities and their relationship, Joule-Thomson effect- coefficient, Calculation of work for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes, State function. Temperature dependence of enthalpy of formation- Kirchoff s equation, Second law of thermodynamics Different Statements of the law, Carnot cycle and its efficiency, Carnot theorem, Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes. Third law of thermodynamics, Nernst heat theorem, Spontaneous and non- spontaneous processes, Helmholtz and Gibbs energies-Criteria for spontaneity.

Co-curricular activities and Assessment Methods

Continuous Evaluation: Monitoring the progress of student's learning Class Tests, Worksheets and Quizzes Presentations, Projects and Assignments Group Discussions: Enhances Critical Thinking Skills And personality

Semester-end Examination: critical indicator of student's teachers throughout the semester.

REFERENCE BOOKS:

1. Concise coordination chemistry by Gopalan and Ramalingam
2. Coordination Chemistry by Basalo and Johnson
3. Organic Chemistry by G.Mareloudan, Purdue Univ
4. Text book of physical chemistry by S Glasstone
6. Concise Inorganic Chemistry by J.D.Lee
7. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
8. A Text Book of Organic Chemistry by Bahl and Arunbahl
9. A Text Book of Organic chemistry by I L FinarVol I
10. A Text Book of Organic chemistry by I L FinarVol II
11. Advanced physical chemistry by Gurudeep Raj

B.Sc.	Semester - IV	Credits: 1
Course: 4(L)	Organic Qualitative analysis Lab	Hrs/Wk: 2

Course outcomes:

At the end of the course, the student will be able to;

- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Determine melting and boiling points of organic compounds
- Understand Application of concepts of different organic reactions studied in theory part of organic chemistry

Organic Qualitative analysis **50 M**

Analysis of an organic compound through systematic qualitative procedure for functional group identification including the determination of melting point and boiling point with suitable derivatives.

Alcohols, Phenols, Aldehydes, Ketones, Carboxylic acids, Aromatic primary amines, amides and simple sugars

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION

SEMESTER: IV

Course 4: Inorganic, Organic & Physical Chemistry

Time: 3Hrs. **Max. Marks: 75**

Section - A

Answer any **FIVE** of the following questions. Each carries **FIVE** marks. **5x5 25M**

1. Describe the 18 electron rule of mono nuclear and polynuclear metal carbonyls with suitable examples.
2. What are epimers and anomers. Give examples.
3. Discuss about iso electric point and zwitter ion.
4. Discuss the Paul-Knorr synthesis of five membered heterocyclic compounds.
5. Explain Tautomerism shown by nitro alkanes
6. Discuss the basic nature of amines.
7. Write the differences between thermal and photochemical reactions.
8. Derive heat capacities and derive $C_p - C_v = R$

Section - B

Answer **ALL** the questions. Each carries **TEN** marks. **5 X 10 = 50 M**

9 (a).What are organometallic compounds? Discuss their Classification on the basis of type of bonds with examples.

(OR)

(b).Discuss the general methods of preparations of mono & bi-nuclear carbonyls of 3d series.

10 (a). Discuss the constitution, configuration and ring size of glucose. Draw the Haworth and Conformational structure of glucose.

(OR)

(b). (i) Explain Ruff's degradation. (ii) Explain Kiliani- Fischer synthesis.

11.(a). What are amino acids? Write any three general methods of preparation of amino acids.

(OR)

(b). Discuss the aromatic character of Furan, Thiophene and Pyrrole.

12.(a). Write the mechanism for the following.

(i)Nef reaction (ii) Mannich reaction

(OR)

(b).(i) Explain Hinsberg separation of amines.

(ii) Discuss any three synthetic applications of diazonium salts.

13.(a). What is quantum yield? Explain the photochemical combination of Hydrogen- Chlorine and Hydrogen - Bromine.

(OR)

(b). Define entropy. Describe entropy changes in the reversible and irreversible process.

B.Sc.	Semester - IV	Credits: 4
Course: 5	Inorganic & Physical Chemistry	Hrs/Wk: 4

Course outcomes:

At the end of the course, the student will be able to;

- Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values
- Application Of Quantization To Spectroscopy.
- Various types of spectra and their use in structure determination.

UNIT I: INFORMATION CHEMISTRY

Coordinator Chemistry: IUPAC nomenclature of coordination compounds, Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Valence Bond Theory (VBT): Inner and outer orbital complexes. Limitations of VBT, Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry, Factors affecting the magnitude of crystal field splitting energy, Spectrochemical series, Comparison of CFSE for Octahedral and Tetrahedral complexes, Tetragonal distortion of octahedral geometry, Jahn-Teller distortion, square planar coordination.

UNIT II:

1. Inorganic Reaction Mechanism:

Introduction to inorganic reaction mechanisms. Concept of reaction pathways, transition state, intermediate and activated complex. Labile and inert complexes, ligand substitution reactions -SN^1 and SN^2, Substitution reactions in square planar complexes, Trans-effect, theories of trans effect and its applications

2. Stability of metal complexes:

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

Bioinorganic Chemistry:

Metal ions present in biological systems, classification of elements according to their action in biological system. Geochemical effect on the distribution of metals, Sodium / K - pump, carbonic anhydrase and carboxypeptidase. Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), reasons for toxicity, Use of chelating agents in medicine, Cis-platin as an anti-cancer drug. Iron and its application in bio-systems, Haemoglobin, Myoglobin. Storage and transfer of iron.

UNIT-III: PHYSICAL CHEMISTRY

1 .Phase rule: Concept of phase, components, degrees of freedom. Thermodynamic derivation of Gibbs phase rule. Phase diagram of one component system - water system, Study of Phase diagrams of Simple eutectic systems i) Pb-Ag system, desilverisation of lead ii) NaCl-Water system, Congruent and incongruent melting point- Definition and examples for systems having congruent and incongruent melting point , freezing mixtures.

UNIT IV:

Electrochemistry: Specific conductance, equivalent conductance and molar conductance- Definition and effect of dilution. Cell constant. Strong and weak electrolytes, Kohlrausch's law and its applications, Definition of transport number, determination of transport number by Hittorf's method. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only), Application of conductivity measurements- conduct metric titrations.Electrochemical Cells- Single electrode

potential, Types of electrodes with examples: Metal- metal ion, Gas electrode, Inert electrode, Redox electrode, Metal-metal insoluble salt- salt anion. Determination of EMF of a cell, Nernst equation, Applications of EMF measurements - Potentiometric titrations. Fuel cells- Basic concepts, examples and applications

UNIT V:

Chemical Kinetics :

The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction, Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations of reactants). Half–life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only).Enzyme catalysis- Specificity,factors affecting enzyme catalysis, Inhibitors and Lock & key model. Michaels- Menten equation- derivation, significance of Michaelis-Menten constant.

Co-curricular activities and Assessment Methods Continuous Evaluation: Monitoring the progress of student's learning Class Tests, Worksheets and Quizzes Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality

Semester-end Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the semester.

REFERENCE BOOKS:

1. Text book of physical chemistry by S Glasstone
2. Concise Inorganic Chemistry by J.D.Lee
3. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
4. Advanced physical chemistry by Gurudeep Raj
5. Principles of physical chemistry by Prutton and Marron
6. Advanced physical chemistry by Bahl and Tuli
7. Inorganic Chemistry by J.E.Huheey
8. Basic Inorganic Chemistry by Cotton and Wilkinson
9. A textbook of qualitative inorganic analysis by A.I. Vogel
10. Atkins, P.W. & Paula, J.de Atkin's Physical Chemistry Ed., Oxford UniversityPress 10thEd(2014)
11. Castellan,G.W.PhysicalChemistry4thEd.Narosa(2004)
12. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).
13. Barrow, G.M.Physical Chemistry

B.Sc.	Semester - IV	Credits: 1
Course: 5(L)	Conductometric and Potentiometric Titrimetry Lab	Hrs/Wk: 2

Course outcomes:

At the end of the course, the student will be able to;

- Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
- Apply concepts of electrochemistry in experiments
- Be familiar with electroanalytical methods and techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte

Conductometric and Potentiometric Titrimetry **50 M**

1. **Conductometric titration**- Determination of concentration of HCl solution using standard NaOH solution.
2. **Conductometric titration**- Determination of concentration of CH_3COOH Solution using standard NaOH solution.
3. **Conductometric titration**- Determination of concentration of CH_3COOH and HCl in a mixture using standard NaOH solution.
4. **Potentiometric titration**- Determination of Fe (II) using standard $K_2Cr_2O_7$ solution.
5. Determination of rate constant for acid catalyzed ester hydrolysis.

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION

SEMESTER: IV

Course 5: : Inorganic & Physical Chemistry

Time: 3Hrs. **Max. Marks: 75**

Section - A

Answer any **FIVE** of the following questions. Each carries **FIVE** marks. **5x5 25M**

1. Write note on Jahn-Teller distortion
2. Explain Labile & inert complexes.
3. Explain Job's method for determination of composition of complex.
4. Explain Thermodynamic derivation of Gibb's phase rule.
5. Explain any two conductometric titrations.
6. Write note on Fuel Cells with examples and applications.
7. What is enzyme catalysis? Write any three factors effecting enzyme catalysis.
8. Derive Michaels- Menten equation.

Section - B

Answer **ALL** the questions. Each carries **TEN** marks **5 X 10 = 50M**

9 (a).Explain Valence Bond theory with Inner and Outer orbital complexes. Write limitations of VBT.

(OR)

(b).Define CFSE. Explain the factors affecting the magnitude of crystal field splitting energy.

10 (a). Explain Trans effect. Explain the theories of trans effect and write any two applications of trans effect.

(OR)

(b). (i) Write the biological functions of Haemoglobin and Myoglobin.

(ii) Write a note on the use of chelating agents in medicines.

11.(a). Define Phase rule and terms involved in it. Explain phase diagram of Pb-Ag system.

(OR)

(b). (i) Explain phase diagram for NaCl-water system.

(ii) Explain briefly about Freezing mixtures.

12.(a). Define Transport number. Write an experimental method for the determination of transport number by Hittorf method.

(OR)

(b).(i) Define single electrode potential.

(ii) Explain four types of electrodes with examples.

13.(a). Explain general methods for determination of order of a reaction.

(or)

(b).Explain Collision theory and Activated complex theory of bimolecular reactions.

UG PROGRAM (4 Years Honors)
CBCS - 2020-21

SUBJECT
BOTANY

Syllabus and Model Question Papers

DETAILS OF COURSE TITLES & CREDITS

Sem	Course No	Course Name	Course Type (T/P/L)	Hrs/Week	Credits	Max. Marks	Max. Marks
				Science: 4+2	Science: 4+2	Count/Internal/ Mid Assessment	Sem- End Exam
I	1	Fundamentals of Microbes and Non-vascular Plants	T	4	4	25	75
	2	Fundamentals of Microbes and Non-vascular Plants	L	2	1	-	50
II	3	Basics of Vascular plants and Phytogeography	T	4	4	25	75
	4	Basics of Vascular plants and Phytogeography	L	2	1	-	50
III	5	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	T	4	4	25	75
	6	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	L	2	1	-	50
IV	7	Plant Physiology and Metabolism	T	4	4	25	75
	8	Plant Physiology and Metabolism	L	2	1	-	50
	9	Cell Biology, Genetics and Plant Breeding	T	4	4	25	75
	10	Cell Biology, Genetics and Plant Breeding	L	2	1	-	50
V	11 &12	Three (3) pairs ofcourses (each pair has 2 related courses) will be offered, student has to choose a pair of courses.					

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

Annexure

Objectives and General Outcomes of Programme and Domain Subject

Programme(B.Sc.) Objectives: The objectives of bachelor's degree programmewith Botany are:

1. To provide a comprehensive knowledge on various aspects related to microbes and plants.
2. To deliver knowledge on latest developments in the field of Plant sciences with a practical approach.
3. To produce a student who thinks independently, critically and discuss various aspects of plant life.
4. To enable the graduate to prepare and pass through national and international examinations related to Botany.
5. To empower the student to become an employee or an entrepreneur in the field of Botany /Biology and to serve the nation.

Programme Outcomes :

1. Understand the basic concepts of Botany in relation to its allied core courses.
2. Perceive the significance of microbes and plants for human welfare, and structural and functional aspects of plants.
3. Demonstrate simple experiments related to plant sciences, analyze data, and interpret them with the theoretical knowledge.
4. Work in teams with enhanced inter-personal skills.
5. Develop the critical thinking with scientific temper.
6. Effectively communicate scientific ideas both orally and in writing.

Domain Subject(Botany) Objectives :

1. To impart knowledge on origin, evolution, structure, reproduction and interrelationships of microbes and early plant groups.
2. To provide knowledge on biology and taxonomy of true land plants within a phylogenetic framework.
3. To teach aspects related to anatomy, embryology and ecology of plants, and importance of Biodiversity.
4. To explain the structural and functional aspects of plants with respect to the cell organelles, chromosomes and genes, and methods of plant breeding.
5. To develop a critical understanding on SPAC, metabolism and growth and development in plants.
6. To enable the students proficient in experimental techniques and methods of analysis appropriate for various sub-courses in Botany.

Domain Subject(Botany) Outcomes:

1. Students will be able to identify, compare and distinguish various groups of microbes and primitive plants based on their characteristics.
2. Students will be able to explain the evolution of trachaeophytes and also distribution of plants on globe.
3. Students will be able to discuss on internal structure, embryology and ecological adaptations of plants, and want of conserving Biodiversity.
4. Students will be able to interpret life processes in plants in relation to physiology and metabolism.
5. Students will be able to describe ultrastructure of plant cells, inheritance and crop improvement methods.
6. Students will independently design and conduct simple experiments based on the knowledge acquired in theory and practicals of the different sub-courses in Botany.

B.Sc.	Semester - I	Credits: 4
Course: 1	Fundamentals of Microbes and Non-vascular Plants	Hrs/Wk: 4

Learning Outcomes: On successful completion of this course, the students will be able to:

- Explain origin of life on the earth.
- Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.
- Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.
- Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat.
- Evaluate the ecological and economic value of microbes, thallophytes and bryophytes

UNIT I: Origin of life and Viruses: 12Hrs.

1. Origin of life, concept of primary Abiogenesis; Miller and Urey experiment. Five kingdom classification of R.H. Whittaker
2. Discovery of microorganisms, Pasteur experiments, germ theory of diseases.
3. Shape and symmetry of viruses; structure of TMV and Gemini virus; multiplication of TMV; A brief account of Prions and Viroids.
4. A general account on symptoms of plant diseases caused by Viruses. Transmission of plant viruses and their control.
5. Significance of viruses in vaccine production, bio-pesticides and as cloning vectors.

UNIT II: Special groups of Bacteria and Eubacteria 12Hrs.

1. Brief account of Archaebacteria, Actinomycetes and Cyanobacteria.
2. Cell structure and nutrition of Eubacteria.
3. Reproduction- Asexual (Binary fission and end oospores) and bacterial recombination (Conjugation, Transformation, Transduction).
4. Economic importance of Bacteria with reference to their role in Agriculture and industry (fermentation and medicine).
5. A general account on symptoms of plant diseases caused by Bacteria; Citrus canker.

UNIT III: Fungi & Lichens 12 Hrs.

1. General characteristics of fungi and Ainsworth classification (upto classes).
2. Structure, reproductionand life history of(a)*Rhizopus*(Zygomycota)and (b)*Puccinia* (Basidiomycota).
3. Economic uses of fungi in food industry, pharmacy and agriculture.
4. A general account on symptoms of plant diseases caused by Fungi; Blast of Rice.
5. Lichens- structure and reproduction; ecological and economic importance.

UNIT IV: Algae 12 Hrs.

1. General characteristics of Algae (pigments, flagella and reserve food material);Fritsch classification (upto classes).
2. Thallus organization and life cycles in Algae.
3. Occurrence, structure, reproduction and life cycle of (a) *Spirogyra* (Chlorophyceae) and (b) *Polysiphonia*(Rhodophyceae).
4. Economic importance of Algae.

UNIT V: Bryophytes **12 Hrs.**

1. General characteristics of Bryophytes; classification upto classes.
2. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life cycle of (a) *Marchantia* (Hepaticopsida) and (b) *Funaria*(Bryopsida).
3. General account on evolution of sporophytes in Bryophyta.

TEXT BOOKS :

1. Botany – I (Vrukshasastram-I) : Telugu Akademi, Hyderabad
2. Pandey, B.P. (2013) *College Botany, Volume-I,* S. Chand Publishing, New Delhi
3. Hait,G., K.Bhattacharya&A.K.Ghosh (2011) *A Text Book of Botany, Volume-I,* New Central Book Agency Pvt. Ltd., Kolkata .
4. Bhattacharjee, R.N., (2017) *Introduction to Microbiology and Microbial Diversity*, Kalyani Publishers, New Delhi.

REFERENCE BOOKS:

1. Dubey, R.C. &D.K.Maheswari (2013) *A Text Book of Microbiology,*S.Chand& Company Ltd., New Delhi
2. Pelczar Jr., M.J., E.C.N. Chan &N.R.Krieg (2001)*Microbiology*, Tata McGraw- Hill Co, New Delhi.
3. Presscott, L. Harley, J. and Klein, D. (2005)*Microbiology, 6th edition*, Tata McGraw –Hill Co. New Delhi.
4. Alexopoulos, C.J., C.W.Mims&M.Blackwell (2007) *Introductory Mycology,*Wiley& Sons, Inc., New York
5. Mehrotra, R.S. & K. R. Aneja (1990)*An Introduction to Mycology*. New Age International Publishers, New Delhi
6. Kevin Kavanagh (2005) *Fungi ; Biology and Applications* John Wiley & Sons, Ltd.,West Sussex, England
7. John Webster & R. W. S. Weber (2007) *Introduction to Fungi,*Cambridge University Press, New York
8. Fritsch, F.E. (1945)*The Structure & Reproduction of Algae (Vol. I & Vol. II)*Cambridge UniversityPress Cambridge, U.K.
9. Bold, H.C. & M. J. Wynne (1984)*Introduction to the Algae,* Prentice-Hall Inc., New Jersey
10. Robert Edward Lee (2008)*Phycology.* Cambridge University Press, New York
11. Van Den Hoek, C., D.G.Mann&H.M.Jahns (1996)*Algae : An Introduction to Phycology*. Cambridge University Press, New York
12. Shaw, A.J.&B.Goffinet (2000)*Bryophyte Biology.*Cambridge University Press, New York.

B.Sc.	Semester - I	Credits: 1
Course: 1(L)	Fundamentals of Microbes and Non-vascular Plants Lab	Hrs/Wk: 2

Course Outcomes: On successful completion of this practical course, student shall be able to;

1. Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.
2. Observe and identify microbes and lower groups of plants on their own.
3. Demonstrate the techniques of inoculation, preparation of media etc.
4. Identify the material in the permanent slides etc.

Practical Syllabus:

1. Knowledge of Microbiology laboratory practices and safety rules.
2. Knowledge of different equipment for Microbiology laboratory (Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, Laminar air flow chamber and Incubator) and their working principles. (In case of the non- availability of the laboratory equipment the students can be taken to the local college/clinical lab. with required infrastructural facilities or they can enter a linkage with the college/lab for future developments and it will fetch creditsduring the accreditation by NAAC).
3. Demonstration of Gram's staining technique for Bacteria.
4. Study of Viruses (Corona, Gemini and TMV) using electron micrographs/ models.
5. Study of Archaebacteriaand Actinomycetes using permanent slides/ electron micrographs/diagrams.
6. Study of *Anabaena* and *Oscillatoria*using permanent/temporary slides.
7. Study of different bacteria (Cocci, Bacillus, Vibrio and Spirillum) using permanent or temporary slides/ electron micrographs/ diagrams.
8. Study/ microscopic observation of vegetative, sectional/anatomical and reproductive structures of the following using temporary or permanent slides/ specimens/ mounts :
   a. Fungi : *Rhizopus,Penicillium*and*Puccinia*
   b. Lichens: Crustose, foliose and fruiticose
   c. Algae :*Volvox, Spirogyra, Ectocarpus*and *Polysiphonia*
   d. Bryophyta : *Marchantia*and *Funaria*
9. Study of specimens of Tobacco mosaic disease, Citrus canker and Blast of Rice.

Model Question Paper for Practical Examination
Semester – I/ Botany Core Course – 1
Fundamentals of Microbes and Non-vascular Plants Lab
(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

Max. Time : 3 Hrs. **Max. Marks : 50**

1. Take the T.S. of material 'A' (Fungi), make a temporary mount and make comments about identification. 10 M
2. Identify any 2 algae from the mixture (material 'B') given with specific comments about identification. 10 M
3. Take the T.S. of material 'C' (Bryophyta), make a temporary mount and make comments about identification. 10 M
4. Identify the following with specific reasons. 4x 3 = 12 M
   D. A laboratory equipment of Microbiology
   E. Virus
   F. Archaebacteria /Ascomycete /Cyanobacteria/ Eu-Bacteria
   G. Lichen
5. Record + Viva-voce 5+3 = 8 M

Suggested co-curricular activities for Botany Core Course-1 in Semester-I :

A. Measurable :

a. Student seminars :

1. Baltimore classification of Viruses.
2. Lytic and lysogenic cycle of T- even Bacteriophages.
3. Viral diseases of humans and animals.
4. Retroviruses
5. Bacterial diseases of humans and animals.
6. Significance of Bacteria in Biotechnology and Genetic engineering.
7. Fungi responsible for major famines in the world.
8. Poisonous mushrooms (Toad stools).
9. Algae as Single Cell Proteins (SCPs)
10. Parasitic algae
11. Origin of Bryophytes through : Algae vsPteridophytes
12. Fossil Bryophytes
13. Evolution of gametophytes in Bryophyta.
14. Ecological and economic importance of Bryophytes.

b. Student Study Projects :

1. Isolation and identification of microbes from soil, water and air.
2. Collection and identification of algae from fresh /estuarine /marine water.
3. Collection and identification of fruiting bodies of Basidiomycetes and Ascomycetes.
4. Collection and identification of Lichens from their native localities.
5. Collection of diseased plants/parts and identification of symptoms.
6. Collection and identification of Bryophytes from their native localities.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Visit to Agriculture and/or Horticulture University/College/Research station to learn about microbial diseases of plants.
2. Visit to industries working on microbial, fungal and algal products.
3. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

B.Sc.	Semester - II	Credits: 4
Course: 2	Basics of Vascular plants and Phytogeography	Hrs/Wk: 4

Learning Outcomes: On successful completion of this course, the students will be able to:

- Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles.
- Justify evolutionary trends in tracheophytes to adapt for land habitat.
- Explain the process of fossilization and compare the characteristics of extinct and extant plants.
- Critically understand various taxonomical aids for identification of Angiosperms.
- Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families.
- Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
- Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.

UNIT I: Pteridophytes **12 Hrs.**

1. General characteristics of Pteridophyta; classification of Smith (1955)up to divisions.
2. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life historyof (a) *Lycopodium* (Lycopsida) and (b) *Marsilea* (Filicopsida).
3. Stelar evolution in Pteridophytes;
4. Heterospory and seed habit.

UNIT II: Gymnosperms **14 Hrs.**

1. General characteristics of Gymnosperms; Sporne classification up to classes.
2. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life history of (a) *Cycas*(Cycadopsida) and (b) *Gnetum* (Gnetopsida).
3. Outlines of geological time scale.
4. A brief account on *Cycadeoidea.*

UNIT III: Basic aspects of Taxonomy **13Hrs.**

1. Aim and scope of taxonomy; Species concept: Taxonomic hierarchy, species, genus and family.
2. Plant nomenclature : Binomial system, ICBN- rules for nomenclature.
3. Herbarium and its techniques, BSI herbarium and Kew herbarium; concept of digital herbaria.
4. Bentham and Hooker system of classification;
5. Systematic description and economic importance of the following families:
   (a) Annonaceae (b) Curcurbitaceae

UNIT IV: Systematic Taxonomy **13 Hrs.**

1. Systematic description and economic importance of the following families:
   (a) Asteraceae (b) Asclepiadaceae (c)Amaranthaceae (d) Euphorbiaceae
   (e) Arecaceae and (f) Poaceae
2. Outlines of Angiosperm Phylogeny Group (APG IV).

UNIT V: Phytogeography **08 Hrs.**

1. Principles of Phytogeography, Distribution (wides, endemic, discontinuous species)
2. Endemism – types and causes.
3. Phytogeographic regions of World.
4. Phytogeographic regions of India.
5. Vegetation types in Andhra Pradesh.

TEXT BOOKS :

1. Botany – I (Vrukshasastram-I) : Telugu Akademi, Hyderabad
2. Botany – II (Vrukshasastram-II) : Telugu Akademi, Hyderabad
3. Acharya, B.C., (2019) *Archchegoniates,* Kalyani Publishers, New Delhi
4. Bhattacharya, K., G. Hait&Ghosh, A. K., (2011) *A Text Book of Botany, Volume- II,* New Central Book Agency Pvt. Ltd., Kolkata
5. Hait,G., K.Bhattacharya&A.K.Ghosh (2011) *A Text Book of Botany, Volume-I,* New Central Book Agency Pvt. Ltd., Kolkata
6. Pandey, B.P. (2013)*College Botany, Volume-I,* S. Chand Publishing, New Delhi
7. Pandey, B.P. (2013)*College Botany, Volume-II,* S. Chand Publishing, New Delhi

REFERENCE BOOKS:

1. Smith, G.M. (1971)*CryptogamicBotanyVol. II.*, Tata McGraw Hill, New Delhi
2. Sharma,O.P.(2012)Pteridophyta. Tata McGraw-Hill, New Delhi
3. Kramer, K.U.&P. S. Green (1990) *The Families and Genera of Vascular Plants, Volume–I*: *Pteridophytes and Gymnosperms*(Ed.K.Kubitzki) Springe-Verlag, New York
4. Bhatnagar, S.P. &AlokMoitra (1996)*Gymnosperms.* New Age International, New Delhi
5. Coulter, J.M. &C.J.Chamberlain(1910) *Morphology of Gymnosperms,*The University of Chicago Press, Chicago, Illinois
6. Govil, C.M. (2007)*Gymnosperms : Extinct and Extant*. KRISHNA Prakashan Media (P) Ltd.Meerut& Delhi
7. Sporne, K.R.(1971)*The Morphology of Gymnosperms.*Hutchinsons Co. Ltd., London
8. Arnold, C.A., (1947) *An introduction to Paleobotany*McGraw –Hill Book Company,INC, New York
9. Stewart,W.N., and G.W.Rothwell (2005) *Paleobotany and the evolution of plants*Cambridge University Press, New York
10. Lawrence, George H.M. (1951) *Taxonomy of Vascular Plants.* The McMillan Co., New York
11. Heywood, V. H. and D. M. Moore (1984)*Current Concepts in Plant Taxonomy.* Academic Press, London.
12. Jeffrey, C. (1982)*An Introduction to Plant Taxonomy*. Cambridge University Press, Cambridge. London.
13. Sambamurty, A.V.S.S. (2005)*Taxonomy of Angiosperms* I. K .International Pvt. Ltd., New Delhi
14. Singh, G. (2012*). Plant Systematics: Theory and Practice*.Oxford & IBH Pvt. Ltd., NewDelhi.
15. Simpson, M.G. (2006). *Plant Systematics.* Elsevier Academic Press, San Diego, CA,U.S.A.
16. Cain, S.A . (1944)*Foundations of Plant Geography*Harper & Brothers, N.Y.
17. Good, R. (1997)*The Geography of flowering Plants (2nd Edn.)*Longmans, Green & Co., Inc., London & Allied Science Publishers, New Delhi
18. Mani, M.S (1974)*Ecology & Biogeography of India*Dr. W. Junk Publishers, The Haque

B.Sc.	Semester - II	Credits: 1
Course: 2(L)	Basics of Vascular plants and Phytogeography Lab	Hrs/Wk: 2

Course Outcomes : On successful completion ofthiscourse students shall be able to :

- Demonstrate the techniques of section cutting, preparing slides, identifying of the materialand drawing exact figures.
- Compare and contrast the morphological, anatomical and reproductive features of vascular plants.
- Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.
- Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.
- Prepare and preserve specimens of local wild plants using herbarium techniques.

Practical Syllabus:

1. Study/ microscopic observation of vegetative, sectional/anatomical and reproductive structures of the following using temporary or permanent slides/ specimens/ mounts :
   a. Pteridophyta : *Lycopodium* and *Marselia*

   b. Gymnosperms : *Cycas*and *Gnetum*
2. Study of fossil specimens of *Cycadeoidea* and *Pentoxylon*(photographs /diagrams can be shown if specimens are not available).
3. Demonstration of herbarium techniques.
4. Systematic / taxonomicstudy of locally available plants belonging to the families prescribed in theory syllabus. (Submission of 30 number of Herbarium sheets of wild plants with the standard system is mandatory).
5. Mapping of phytogeographical regions of the globe and India.

Model Question Paper for Practical Examination

Semester – II/ Botany Core Course – 2

Basics of Vascular plants and Phytogeography

(Pteridophytes, Gymnosperms,Taxonomy of Angiosperms and Phytogeography)

Time : 3 Hrs. **Max. Marks : 50**

1. Take T.S. of the material 'A' (Pteridophyta), make a temporary slide and justify the identification with apt points. 10 M
2. Take T.S. of the material 'B' (Gymnosperms), make a temporary slide and justify the identification with apt points. 10 M
3. Describe the vegetative and floral characters of the material 'C' (Taxonomy of Angiosperms) and derive its systematic position. 10 M
4. Identify the specimen 'D' (Fossil Gymnosperm) and give specific reasons. 5 M
5. Locate the specified phytogeographical regions (2x2M) in the world / India (E) map supplied to you. 4 M
6. Record + Herbarium & Field note book + Viva-voce 5 +4+3 = 12 M

Suggested co-curricular activities for Botany Core Course-2 in Semester-II :

A. Measurable :

a. Student seminars :

1. Fossil Pteridophytes.
2. Aquatic ferns and tree ferns
3. Ecological and economic importance of Pteridophytes
4. Evolution of male and female gametophytes in Gymnosperms.
5. Endemic and endangered Gymnosperms.
6. Ecological and economic importance of Gymnosperms.
7. Floras and their importance :Flora of British India and Flora of Madras Presidency.
8. Botanical gardens and their importance :National Botanic garden and Royal Botanic garden.
9. Artificial, Natural and Phylogenetic classification systems.
10. Molecular markers used in APG system of classification.
11. Vessel less angiosperms.
12. Insectivorous plants.
13. Parasitic angiosperms.
14. Continental drift theory and species isolation.

b. Student Study Projects :

1. Collection and identification of Pteridophytes from their native locality/ making an album by collecting photographs of Pteridophytes.
2. Collection and identification of Gymnospermsfrom their native locality/ making an album by collecting photographs of Gymnosperms.
3. Collection of information on famous herbaria in the world and preparation of a report.
4. Collection of information on famous botanic gardens in the world and preparation of a report.
5. Collection of data on vegetables (leafy and fruity) plants in the market and and preparation of a report on their taxonomy.
6. Collection and identification of fresh and dry fruits plants in the market and and preparation of a report on their taxonomy.
7. Collection of data on plants of ethnic and ethnobotanical importance from theirnative locality.
8. Preparation of a local flora by enlisting the plants of their native place.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Visit to Botanic garden in a Research institute/University to see the live plants.
2. Virtual tour in websites for digital herbaria and botanic gardens.
3. Acquaint with standard floras like – Flora of Madras Presidency, Flora of their respective district in Andhra Pradesh.
4. Looking into vegetation of different phytogeographical regions using web resources.
5. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

B.Sc.	Semester - III	Credits: 4
Course: 3	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	Hrs/Wk: 4

Learning outcomes: On successful completion of this course, the students will be able to;

1. Understand on the organization of tissues and tissue systems in plants.
2. Illustrate and interpret various aspects of embryology.
3. Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.
4. Appraise various qualitative and quantitative parameters to study the population and community ecology.
5. Correlate the importance of biodiversity and consequences due to its loss.
6. Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation

UNIT I: Anatomy of Angiosperms **12 Hrs.**

1. Organization of apical meristems: Tunica-carpus theory and Histogen theory.
2. Tissue systems–Epidermal, ground and vascular.
3. Anomalous secondary growth in *Boerhaavia* and *Dracaena.*
4. Study of timbers of economic importance - Teak, Red sanders and Rosewood.

UNIT II: Embryology of Angiosperms **12 Hrs.**

1. Structure of anther, anther wall, types of tapetum. Microsporogenesis and development of male gametophyte.
2. Structure of ovule, megasporogenesis; monosporic (*Polygonum*), bisporic (*Allium*) and tetrasporic (*Peperomia*) types of embryo sacs.
3. Outlines of pollination, pollen – pistil interaction and fertilization.
4. Endosperm - Types and biological importance - Free nuclear, cellular,helobialand ruminate.
5. Development of Dicot (*Capsella bursa-pastoris*) embryo.

UNIT III: Basics of Ecology **12 Hrs.**

1. Ecology: definition, branches and significance of ecology.
2. Ecosystem: Concept and components, energy flow, food chain, food web, ecologicalpyramids.
3. Plants and environment: Climatic (light and temperature), edaphic and biotic factors.
4. Ecological succession:Hydrosere and Xerosere.

UNIT IV: Population, Community and Production Ecology **12 Hrs.**

1. Population ecology: Natality, mortality, growth curves, ecotypes, ecads
2. Community ecology: Frequency, density, cover, life forms, biological spectrum
3. Concepts of productivity: GPP, NPP and Community Respiration
4. Secondary production, P/R ratio and Ecosystems.

UNIT V: Basics of Biodiversity **12 Hrs.**

1. Biodiversity: Basic concepts, Convention on Biodiversity - Earth Summit.
2. Value of Biodiversity; types and levels of biodiversity and Threats to biodiversity
3. Biodiversity Hot spots in India.Biodiversity in North Eastern Himalayas and Western Ghats.
4. Principles of conservation: IUCN threat-categories, RED data book
5. Role of NBPGR and NBA in the conservation of Biodiversity.

TEXT BOOKS :

1. Botany – III (Vrukshasastram-I) : Telugu Akademi, Hyderabad
2. Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad
3. Pandey, B.P. (2013) *College Botany, Volume-II,* S. Chand Publishing, New Delhi
4. Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
5. Bhattacharya, K., G. Hait&Ghosh, A. K., (2011) *A Text Book of Botany, Volume- II,* New Central Book Agency Pvt. Ltd., Kolkata

REFERENCE BOOKS:

1. Esau, K. (1971)*Anatomy of Seed Plants.* John Wiley and Son, USA.
2. Fahn, A. (1990)*Plant Anatomy*, Pergamon Press, Oxford.
3. Cutler, D.F., T. Botha & D. Wm. Stevenson (2008)*Plant Anatomy : An Applied Approach*, Wiley, USA.
4. Paula Rudall (1987)*Anatomy of Flowering Plants : An Introduction to Structure and Development.* Cambridge University Press, London
5. Bhojwani, S. S. and S. P. Bhatnagar (2000)*The Embryology of Angiosperms (4thEd.),*Vikas Publishing House, Delhi.
6. Pandey, A. K. (2000) *Introduction to Embryology of Angiosperms*. CBS Publishers & Distributors Pvt. Ltd. , New Delhi
7. Maheswari, P. (1971)*An Introduction to Embryology of Angiosperms*. McGraw Hill Book Co., London.
8. Johri, B.M. (2011)*Embryology of Angiosperms.* Springer-Verlag, Berlin
9. Pandey, B.P. (2013)*College Botany, Volume-III,* S. Chand Publishing, New Delhi
10. Bhattacharya, K., A. K. Ghosh, & G. Hait (2011) *A Text Book of Botany, Volume- IV,* New Central Book Agency Pvt. Ltd., Kolkata
11. Kormondy, Edward J. (1996) *Concepts of Ecology*,Prentice-Hall of India Private Limited, New Delhi
12. Begon, M., J.L. Harper & C.R. Townsend (2003) *Ecology,* Blackwell Science Ltd., U.S.A
13. Eugene P. Odum (1996)*Fundamentals of Ecology*,Natraj Publishers, Dehradun
14. Sharma, P.D. (2012) *Ecology and Environment*. Rastogi Publications, Meerut, India.
15. N.S.Subrahmanyam& A.V.S.S. Sambamurty (2008)*Ecology*Narosa Publishing House, New Delhi
16. A. K. Agrawal& P.P. Deo (2010) *Plant Ecology,*Agrobios (India), Jodhpur
17. Kumar, H.D. (1992) *Modern Concepts of Ecology (7th Edn.,)*Vikas Publishing Co., New Delhi.
18. Newman, E.I. (2000): *Applied Ecology*Blackwell Scientific Publisher, U.K.
19. Chapman, J.L&M.J. Reiss (1992): *Ecology - Principles & Applications.*Cambridge University Press, U.K.
20. Kumar H.D. (2000)*Biodiversity & Sustainable Conservation* Oxford & IBH Publishing Co Ltd. New Delhi.
21. U. Kumar (2007) *Biodiversity : Principles & Conservation,*Agrobios (India), Jodhpur

B.Sc.	Semester - III	Credits: 1
Course: 3(L)	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity Lab	Hrs/Wk: 2

Course Outcomes: On successful completion of this practical course students shall be able to :

- Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.
- Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.
- Demonstrate application of methods in plant ecology and conservation of bio diversity and qualitative and quantitative aspects related to populations and communities of plants.

Practical Syllabus

1. Tissue organization in root and shoot apices using permanent slides.
2. Anomalous secondary growth in stems of *Boerhavia* and *Dracaena*.
3. Study of anther and ovule using permanent slides/photographs.
4. Study of pollen germination and pollen viability.
5. Dissection and observation of Embryo sac haustoria in *Santalum* or *Argemone.*
6. Structure of endosperm (nuclear and cellular) using permanent slides / Photographs.
7. Dissection and observation of Endosperm haustoria in *Crotalaria* or *Coccinia*.
8. Developmental stages of dicot and monocot embryos using permanent slides / photographs.
9. Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, rain gauze, and lux meter. (visit to the nearest/local meteorology station where the data is being collected regularly and record the field visit summary for the submission in the practical).
10. Study of morphological and anatomical adaptations of hydrophytes and xerophytes (02 each).
11. Quantitative analysis of herbaceous vegetation in the college campus for frequency, density and abundance.
12. Identification of vegetation/various plants in college campus and comparison with Raunkiaer's frequency distribution law.
13. Find out the alpha-diversity of plants in the area
14. Mapping of biodiversity hotspots of the world and India.

Model paper for Practical Examination

Semester – III/ BotanyCore Course – 3

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

Max. Time : 3 Hrs. Max. Marks : 50

1. Take T.S. of the material 'A' (Anatomy), prepare a temporary slide and justify the identification with specific reasons. 10 M
2. Write the procedure for the experiment 'B' (Embryology) and demonstrate the same. 10 M
3. Take T.S. of the material 'C', prepare a temporary slide and justify the identification with specific reasons. 10 M
4. Identify the following with specific reasons. 4 x 3 = 12 M
   a. Anatomy/Embryology
   b. Ecology instrument
   c. Mapping of Biodiversity hot spot
   d. Endemic/endangered plant/animal
5. Record + Viva-voce 5 + 3 = 8 M

Suggested co-curricular activities for Botany CoreCourse-3 in Semester-III :

A. Measurable :

a. Student seminars :

1. Anatomy in relation to taxonomy of Angiosperms.
2. Nodal anatomy
3. Floral anatomy
4. Embryology in relation to taxonomy of Angiosperms.
5. Apomictics and polyembryony.
6. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.
7. Deforestation and Afforestation.
8. Green house effect and ocean acidification.
9. The Montreal protocol and the Kyoto protocol.
10. Productivity of aquatic ecosystems.
11. Mangrove ecosystems in India.
12. Kollerulake – Ramsar site.
13. Biodiversity hotspots of the world.
14. Origin of Crop plants - Vavilov centers
15. Agrobiodiversity
16. International organizations working on conservation of Biodiversity
17. Nagoya protocol – ABS system.
18. Endemic and endangered plants in Andhra Pradesh.

b. Student Study Projects :

1. Stomata structure in plants from college campus/ their native place.
2. Report on xylem elements in plants using maceration technique.
3. Collection of information on famous herbaria in the world and preparation of a report.
4. Microscopic observations on pollen morphology from plants in college campus/ their native locality.
5. Study report on germination and viability of pollen in different plants.
6. Observation of anthesis time in different plants and their pollinators.
7. A report on autecology and synecology of some plants in college campus or their native place.
8. Collection of photos of endemic/endangered plant and animal species to makean album.
9. Biodiversity of the college or their own residential/ native area.
10. Collection of seeds/vegetative organs of rare plant species from their localities and to raise/grow in college garden

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Visit to an arboretum/silviculture station/Forest research institute to see the live timber yielding plants or to visit a local timber depot. to observe various woods.
2. Field visit to a nearby ecosystem to observe the abiotic-biotic relationships.
3. Visit to National park/Sanctuary/Biosphere reserve etc., to observe in-situ conservation of plants and animals.
4. Visit to a Botanical garden or Zoo to learn about ex-situ conservation of rare plants or animals.
5. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

B.Sc.	Semester - IV	Credits: 4
Course: 4	Plant Physiology and Metabolism	Hrs/Wk: 4

Learning outcomes: On successful completion of this course,the students will be able to;

- Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.
- Evaluate the role of minerals in plant nutrition and their deficiency symptoms.
- Interpret the role of enzymes in plant metabolism.
- Critically understand the light reactions and carbon assimilation processes responsible for synthesis of foodin plants.
- Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.
- Evaluate the physiological factors that regulategrowth and development in plants.
- Examine the role of light on flowering and explain physiology of plants under stress conditions.

UNIT I: Plant-Water relations **10 Hrs.**

1. Importance of water to plant life, physical properties of water, diffusion, imbibition, osmosis. water potential, osmotic potential, pressure potential.
2. Absorption and lateral transport of water; Ascent of sap
3. Transpiration: stomata structure and mechanism of stomatal movements (K^+ ion flux).
4. Mechanism of phloem transport; source-sink relationships.

UNIT II: **Mineral nutrition, Enzymes and Respiration** **14 Hrs.**

1. Essential macro and micro mineral nutrients and their role in plants; symptoms of mineral deficiency
2. Absorption of mineral ions; passive and active processes.
3. Characteristics, nomenclature and classification of Enzymes. Mechanism of enzyme action, enzyme kinetics.
4. Respiration: Aerobic and Anaerobic; Glycolysis, Krebs cycle; electron transport system, mechanism of oxidative phosphorylation, Pentose Phosphate Pathway (HMP shunt).

UNIT III: Photosynthesis and Photorespiration **12 Hrs.**

1. Photosynthesis: Photosynthetic pigments, absorption and action spectra; Red drop and Emerson enhancement effect.
2. Concept of two photosystems; mechanism of photosynthetic electron transport and evolution of oxygen; photophosphorylation
3. Carbon assimilation pathways (C3,C4 and CAM);
4. Photorespiration - C2 pathway

UNIT IV: Nitrogen and lipid metabolism **12 Hrs.**

1. Nitrogen metabolism: Biological nitrogen fixation – asymbiotic and symbiotic nitrogen fixing organisms. Nitrogenase enzyme system.
2. Lipid metabolism :Classification of Plant lipids, saturated and unsaturated fatty acids.
3. Anabolism of triglycerides, β-oxidation of fatty acids, Glyoxylate cycle.

UNIT V: Plant growth - development and stress physiology **12 Hrs.**

1. Growth and Development: Definition, phases and kinetics of growth.
2. Physiological effects of Plant Growth Regulators (PGRs) - auxins, gibberellins, cytokinins, ABA, ethylene and brassinosteroids.
3. Physiology of flowering :Photoperiodism, role of phytochrome in flowering.
4. Seed germination and senescence.
5. Physiological changes during water stress.

TEXT BOOKS :

1. Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad
2. Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
3. Ghosh, A. K., K. Bhattacharya &G. Hait (2011) *A Text Book of Botany, Volume- III,* New Central Book Agency Pvt. Ltd., Kolkata

REFERENCE BOOKS:

1. Aravind Kumar & S.S. Purohit (1998) *Plant Physiology – Fundamentals and Applications,* AgroBotanica, Bikaner
2. Datta, S.C. (2007) *Plant Physiology,*New Age International (P) Ltd., Publishers, New Delhi
3. Hans Mohr & P. Schopfer (2006)*Plant Physiology,* Springer (India) Pvt. Ltd., New Delhi
4. Hans-Walter heldt (2005) *Plant Biochemistry,*Academic Press, U.S.A.
5. Hopkins, W.G. & N.P.A. Huner (2014)*Introduction to Plant Physiology,* Wiley India Pvt. Ltd., New Delhi
6. Noggle Ray & J. Fritz (2013)*Introductory Plant Physiology*, Prentice Hall (India), New Delhi
7. Pandey, S.M. &B.K.Sinha (2006)*Plant Physiology*, Vikas Publishing House, New Delhi
8. Salisbury, Frank B. & Cleon W. Ross (2007)*Plant Physiology*, Thomsen & Wadsworth, Austalia&U.S.A
9. Sinha, R.K. (2014) *Modern Plant Physiology*, Narosa Publishing House,New Delhi
10. Taiz, L.&E. Zeiger (2003)*Plant Physiology*, Panima Publishers, New Delhi
11. Verma, V.(2007)*Text Book of Plant Physiology,*Ane Books India, New Delhi

B.Sc.	Semester - IV	Credits: 1
Course: 4(L)	Plant Physiology and Metabolism Lab	Hrs/Wk: 2

Course outcomes: On successful completion of this practical course, students shall be able to:

- Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.
- Estimate the quantities and qualitative expressions using experimental results and calculations
- Demonstrate the factors responsible for growth and development in plants.

Practical Syllabus

1. Determination of osmotic potential of plant cell sap by plasmolytic method using *Rhoeo*/ *Tradescantia* leaves.
2. Calculation of stomatal index and stomatal frequency of a mesophyte and a xerophyte.
3. Determination of rate of transpiration using Cobalt chloride method / Ganong's potometer (at least for a dicot and a monocot).
4. Effect of Temperature on membrane permeability by colorimetric method.
5. Study of mineral deficiency symptoms using plant material/photographs.
6. Demonstration of amylase enzyme activity and study the effect of substrate and Enzyme concentration.
7. Separation of chloroplast pigments using paper chromatography technique.
8. Demonstration of Polyphenol oxidase enzyme activity (Potato tuber or Apple fruit)
9. Anatomy of C3, C4 and CAM leaves
10. Estimation of protein by biuret method/Lowry method
11. Minor experiments – Osmosis, Arc-auxonometer, ascent of sap through xylem, cytoplasmic streaming.

Model Question Paper for Practical Examination
Semester – IV/ Botany Core Course – 4
Plant Physiology and Metabolism

Max. Time : 3 Hrs. **Max. Marks : 50**

1. Conduct the experiment 'A' (Major experiment), write aim, principle, material and apparatus/equipment, procedure, tabulate results and make conclusion. 20 M
2. Demonstrate the experiment 'B' (Minor experiment) , write the principle, procedure and give inference. 10 M
3. Identify the following with apt reasons. 3 x 4 = 12 M
   C. Plant water relations / Mineral nutrition
   D. Plant metabolism
   E. Plant growth and development
4. Record + Viva-voce 5 + 3 = 8 M

Suggested co-curricular activities for Botany Core Course-4 in Semester-IV :

A. Measurable :

a. Student seminars :

1. Antitranspirants and their significance in crop physiology and horticulture.
2. Natural chelating agents in plants.
3. Criteria of essentiality of elements and beneficial elements.
4. Hydroponics, aquaponics and aeroponics.
5. Mycorrhizal association and mineral nutrition in plants.
6. Non-proteinaceous enzymes.
7. Respiratory inhibitors.
8. Structure of ATPase and Chemiosmotic hypothesis.
9. Transpiration and photosynthesis – a compromise.
10. Amphibolic pathways and bypass pathways in plants.
11. Non-biological nitrogen fixation.
12. Role of Hydrogenase in nitrogen fixation.
13. Plant lectins – their role in plants and use in medicine and medical research.

b. Student Study Projects :

1. Stomatal densities among different groups of plants.
2. Various treatments (salt, cold, high temperature, heavy metals) and their effects on seed germination.
3. Effects of plant hormones (IAA, Gibberellin and Kinetin) on Seed Germination.
4. Diurnal variation of stomatal behavior in CAM and C3 plants found in local area.
5. Effects of nitrogen fertilizer on plant growth.
6. Enumeration of C3, C4 and CAM plants in the local area.
7. Effect of different light wavelengths (red light, green light, blue light) on apparent photosynthesis in terms of growth.
8. Light effects on leaf growth and leaf orientation.
9. Artificial Fruit Ripening Process by various treatments (carbide and ethylene).
10. Study of relative water content and water retention by leaves under different environments.
11. Study of soil nutrients in local agricultural fields.
12. Study of mineral deficiency symptoms of various crops of local area.
13. Study of local weeds in crop fields.
14. Studies on seed storage proteins, oils and starch in local millets and pulse crops.
15. Making a report on LDPs, SDPs and DNPs in their locality.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to a Plant Physiology laboratory in a University or Physiology division in a Agriculture/Horticulture University/Research station.

B.Sc.	Semester - IV	Credits: 4
Course: 5	Cell Biology, Genetics and Plant Breeding	Hrs/Wk: 4

Learning outcomes: On successful completion of this course,the students will be able to:

- Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
- Explain the organization of a eukaryotic chromosomeand the structure of genetic material.
- Demonstrate techniques to observe the cell and its componentsunder a microscope.
- Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
- Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
- Evaluate the structure, function and regulation of genetic material.
- Understand the application of principles and modern techniques inplant breeding.
- Explain the procedures of selection and hybridization for improvement of crops.

UNIT I: The Cell **12 Hrs.**

1. Cell theory; prokaryotic vs eukaryotic cell; animal vs plant cell; a brief account on ultra-structure of a plant cell.
2. Ultra-structure of cell wall.
3. Ultra-structure of plasma membrane and various theories on its organization.
4. Polymorphic cell organelles (Plastids); ultrastructure of chloroplast. Plastid DNA.

UNIT II: Chromosomes **12 Hrs.**

1. Prokaryotic vs eukaryotic chromosome. Morphology of a eukayotic chromosome.
2. Euchromatin and Heterochromatin; Karyotype and ideogram.
3. Brief account of chromosomal aberrations - structural and numerical changes
4. Organization of DNA in a chromosome (solenoid and nucleosome models).

UNIT III: Mendelian and Non-Mendelian genetics **14Hrs.**

1. Mendel's laws of inheritance. Incomplete dominance and co-dominance; Multiple allelism.
2. Complementary, supplementary and duplicate gene interactions (plant based examples are to be dealt).
3. A brief account of linkage and crossing over; Chromosomal mapping - 2 point and 3 point test cross.
4. Concept of maternal inheritance (Corren's experiment on *Mirabilis jalapa*); Mitochondrial DNA.

UNIT IV: Structure and functions of DNA **12 Hrs.**

1. Watson and Crick model of DNA. Brief account on DNA Replication (Semi- conservative method).
2. Brief account on Transcription, types and functions of RNA. Gene concept and genetic code and Translation.
3. Regulation of gene expression in prokaryotes - Lac Operon.

UNIT V: Plant Breeding **12 Hrs.**

1. Plant Breeding and its scope; Genetic basis for plant breeding. Plant Introduction and acclimatization.
2. Definition, procedure; applications and uses; advantages and limitations of :(a) Mass selection, (b) Pure line selection and (c) Clonal selection.
3. Hybridization – schemes, and technique; Heterosis(hybrid vigour).
4. brief account on Molecular breeding – DNA markers in plant breeding. RAPD, RFLP.

TEXT BOOKS :

1. Botany – III (Vrukshasastram-I) : Telugu Akademi, Hyderabad
2. Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
3. Ghosh, A.K., K.Bhattacharya&G. Hait (2011) *A Text Book of Botany, Volume-III*, New Central Book Agency Pvt. Ltd., Kolkata
4. Chaudhary, R. C. (1996) *Introduction to Plant Breeding,* Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi

REFERENCE BOOKS:

1. S. C. Rastogi (2008)*Cell Biology*,New Age International (P) Ltd. Publishers, New Delhi
2. P. K. Gupta (2002)*Cell and Molecular biology*,Rastogi Publications, New Delhi
3. B. D. Singh (2008) *Genetics,*Kalyani Publishers, Ludhiana
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5. Cooper, G.M. & R.E. Hausman (2009)*The Cell – A Molecular Approach,* A.S.M. Press, Washington
6. Becker, W.M., L.J. Kleinsmith& J. Hardin (2007)*The World of Cell,* Pearson Education, Inc., New York
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9. Gardner, E.J., M. J. Simmons & D.P. Snustad (2004)*Principles of Genetics,* John Wiley & Sons Inc., New York
10. Micklos, D.A., G.A. Freyer& D.A. Cotty (2005) *DNA Science: A First Course*, I.K. International Pvt. Ltd., New Delhi
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12. Sharma, J.R. (1994)*Principles and Practice of Plant Breeding*, Tata McGraw- Hill Publishers, New Delhi
13. Singh,B.D. (2001)*Plant Breeding : Principles and Methods* ,Kalyani Publishers, Ludhiana
14. Pundhan Singh (2015) *Plant Breeding for Undergraduate Students,* Kalyani Publishers, Ludhiana
15. upta, S.K. (2010)*Plant Breeding : Theory and Techniques,*Agrobios (India), Jodhpur
16. Hayes, H.K., F.R. Immer& D.C. Smith (2009) *Methods of Plant Breeding,* Biotech Books, Delhi

B.Sc.	Semester - IV	Credits: 1
Course: 5(L)	Cell Biology, Genetics and Plant Breeding Lab	Hrs/Wk: 2

Course Outcomes: After successful completion of this practical course the student shall be able to:

- Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify differentstages of cell division.
- Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models
- Solve the problems related to crosses and gene interactions.
- Demonstrate plant breeding techniques such as emasculation and bagging

Practical Syllabus:

1. Study of ultra structure of plant cell and its organelles using Electron microscopic Photographs /models.
2. Demonstration of Mitosis in *Allium cepa*/*Aloe vera* roots using squashtechnique; observation of various stages of mitosis in permanent slides.
3. Demonstration of Meiosis in P.M.C.s of *Allium cepa*flower buds using squash technique; observation of various stages of meiosis in permanent slides.
4. Study of structure of DNA and RNA molecules using models.
5. Solving problems monohybrid, hybrid, back and test crosses.
6. Solving problems on gene interactions (atleast one problem for each of the gene interactions in the syllabus)
7. Chromosome mapping using 3- point test cross data.
8. Demonstration of emasculation, bagging, artificial pollination techniques for hybridization.

Model paper for Practical Examination
Semester-IV / Botany Core Course – 5
Cell Biology, Genetics and Plant Breeding

Max. Time : 3 Hrs. Max. Marks : 50

1. Make a cytological preparation of given material 'A' (mitosis or meiosis in Onion) by squash technique, report any two stages, draw labeled diagrams and write the reasons. 15 M
2. Solve the given Genetic problem (Dihybrid cross/ Interaction of genes/ 3-point test cross) 'B' and write the conclusions. 15 M
3. Identify the following and justify with apt reasons. 3 x 4 = 12 M
   C. Cell Biology (Cell organelle)

   D. Genetics (DNA/RNA)

   E. Plant Breeding
4. Record + Viva-voce 5 + 3 = 8 M

Suggested co-curricular activities for Botany Core Course- 5 in Semester-IV :

A. Measurable :

a. Student seminars :

1. Light microscopy : bright field and dark field microscopy.
2. Scanning Electron Microscopy (SEM).
3. Transmission Electron Microscopy (TEM).
4. Mitosis and Meiosis
5. Cell cycle and its regulation.
6. Cell organelles bounded by single membrane.
7. Prokaryotic chromosomes
8. Special types of chromosomes :Polytene, Lampbrush and B-chromosomes.
9. Different forms of DNA.
10. Gene mutations.
11. DNA damage and repair mechanisms.
12. Reverse transcription.
13. Protein structure.
14. Modes of reproduction in plants.
15. Modes of pollination in plants

b. Student Study Projects :

1. Study of mitoticcell cycle in roots of*Aliumcepa*
2. tudy of mitoticcell cycle in roots of*Aloe vera*
3. Observation of chromosomal aberrations in *Allium cepa* root cells exposed toindustrial effluent(s).
4. Observation of chromosomal aberrations in *Allium cepa* root cells exposed toheavy metal(s).
5. Observation of polyembryony in *Citrus* spp.and *Mangiferaindica*.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

- Field visit to Agriculture/Horticulture University/ Research station to observe Plant breeding methods.
- Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

RECOMMENDED ASSESSMENT OF STUDENTS:

Recommended continuous assessment methods for all courses:

Some of the following suggested assessment methodologies could be adopted. Formal assessment for awarding marks for Internal Assessment in theory.

(a) Formal:

1. The oral and written examinations (Scheduled and surprise tests),
2. Simple, medium and Critical Assignments and Problem-solving exercises,
3. Practical assignments and laboratory reports,
4. Assessment of practical skills,
5. Individual and group project reports,
6. Seminar presentations,
7. Viva voce interviews.

(b) Informal:

1. Computerized adaptive testing, literature surveys and evaluations,
2. Peers and self-assessment, outputs form individual and collaborative work
3. Closed-book and open-book tests,

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: I
Course 1: Fundamentals of Microbes and Non-vascular Plants

Time: 3Hrs. **Max. Marks: 75**

SECTION - A

Answer any 5 questions. Each question carries 5 marks **5 x 5 =25M**

1. (a) Prions (b) Viroids
2. Archaebacteria
3. (a) Basidiocarp (b) Ascocarp
4. Economic importance of Lichens
5. Reserve food material in Algae
6. (a) Scalariform conjugation (b) Lateral conjugation
7. General characteristics of Bryophytes
8. Anatomy of thallus in *Marchantia*

SECTION - B

Answer all the questions. Each question carries 10 marks **5X10 =50M**

9. a) Describe the structure of TMV and Gemini virus with neat labeled diagrams.

(OR)

b)Write a general account on symptoms of plant diseases caused by Viruses.

10. a)Describe the cell structure of a eubacterium with neat labeled diagram.

(OR)

b)Discuss the economic importance of bacteria in agriculture and industrial sectors with suitable examples.

11. a)Explain the life cycle in *Puccinia* with the help of a schematic diagram.

(OR)

b) Discuss the economic uses of fungi in food industry, pharmacy and agriculture.

12. a)Write an essay on sexual reproduction in *Polysiphonia*.

(OR)

b) Discuss the economic importance of Algae with suitable examples.

13. a)Describe the sexual reproduction in *Funaria* with neat labeled diagrams.

(OR)

b)Write an essay on classification of Bryophytes upto classes.

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: II
Course2 : Basics of Vascular plants and Phytogeography

Time: 3Hrs. **Max. Marks: 75**

SECTION - A

Answer any 5 questions. Each question carries 5 marks **5 x 5 =25M**

1. a) Eusporangium (b) Leptosporangium
2. Geological time scale.
3. Binomial system
4. (a) Synandrous condition (b) Syngenesious condition
5. Essential organs in flower of Acepiadaceae family
6. Economic importance of Arecaceae family
7. (a) Wides (b) Discontinuous species
8. Vegetation types in Andhra Pradesh

SECTION - B

Answer all the questions. Each question carries 10 marks **5X10 =50M**

9.a) Describe the sexual reproduction in Lycopodium with neat labeled diagrams.

(OR)

b)Explain the stellar evolution in Pteridophytes with neat labeled diagrams and suitable examples.

10. a)Write an essay on general characteristics of Gymnosperms.

(OR)

b)Discuss the structure of ovule in *Gnetum* with a neat labeled diagram.

11. a) What is a herbarium? Explain the techniques of herbarium.

(OR)

b)Discuss the vegetative and floral characters of Annonaceae family. Add a note on economic importance of that family.

12. a) Discuss the vegetative and floral characters of Asteraceae family.

(OR)

b) Discuss the vegetative and floral characters of Poaceae family. Add a note on economic importance of that family.

13. a)Explain different types Endemism and causes for it.

(OR)

b) Describe different phytogeographic regions of India with examples of flora.

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: III
Course 3: Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity
Time: 3Hrs. Max. Marks: 75

SECTION - A

Answer any 5 questions. Each question carries 5 marks 5 x 5 =25M

1. (a) Xylem tracheids (b) Xylem vessels
2. (a) Periplasmodial tapetum (b) Glandular tapetum
3. (a) Helobial endosperm (b) Ruminate endosperm
4. Pyramids of numbers
5. (a) Ecotypes (b) Ecads
6. P/R ratio
7. Earth Summit.
8. Role of NBPGR in conservation of Biodiversity

SECTION - B

Answer all the questions. Each question carries 10 marks 5X10 =50M

9. a)Write an essay on organization of apical meristems with theories proposed.

(OR)

b)Discuss the anomalous secondary growth in stem of *Boerhaavia* with the help of a neat labeled diagram.

10. a)Explain monosporic and bisporic types of embryosac development in angiosperms.

(OR)

b) Describe the embryogeny in a dicot plant with neat labeled diagrams.

11. a) Explain various effects of light factor plants and their communities?

(OR)

b) Define ecological succession. Discuss hydrosere with suitable diagrams and examples.

12. a) Describe Raunkiaer's life forms with suitable examples.

(OR)

b) Write an essay on primary productivity.

13.a)Write an essay on value of biodiversity with appropriate examples.

(OR)

b)Define biodiversity hotspot. Discuss the biodiversity in Western Ghats of India.

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: IV
Course 4: Plant Physiology and Metabolism

Time: 3Hrs. **Max. Marks: 75**

SECTION - A

Answer any 5 questions. Each question carries 5 marks **5 x 5 =25M**

1. (a) Diffusion (b) Imbibition
2. (a) Macro nutrients (b) Micro nutrients
3. (a) Anaerobic respiration (b) Aerobic respiration
4. (a) Absorption spectrum (b) Action spectrum
5. C2 pathway
6. Fatty acids
7. Physiological effects of Brassinisteroids
8. Sigmoid growth curve

SECTION - B

Answer all the questions. Each question carries 10 marks **5X10 =50M**

9. a) Explain how ascent of sap occur in plants with suitable theory.

(OR)

b) Discuss the phloem transport in plants. Add a note on source-sink relationship.

10.a) Write an essay on classification of enzymes.

(OR)

b) Describe the Krebs cycle with the help of schematic diagram.

11. a) Define photophosphorylation. Explain the non-cyclic photophosphorylation with the help of a schematic diagram.

(OR)

b) Discuss the carbon assimilation in CAM plants.

12. a) Write an essay on biological nitrogen fixation.

(OR)

b) Describe the Glyoxylate cycle with the help of a schematic diagram.

13. a) Define photoperiodism. Write an essay on role of phytochrome in photoperiodic responses of plants.

(OR)

b) Discuss the physiological changes in plants during water stress.

MODEL QUESTION COURSE

B. Sc DEGREE EXAMINATION
SEMESTER: IV
Course 5: Cell Biology, Genetics and Plant Breeding

Time: 3Hrs. **Max. Marks: 75**

SECTION - A

Answer any 5 questions. Each question carries 5 marks **5 x 5 =25M**

1. Differences between prokaryotic and eukaryotic cells.
2. (a) Karyotype (b) Ideogram
3. (a) Incomplete dominance (b) Co-dominance
4. Maternal inheritance
5. Double helical structure of DNA
6. Genetic code
7. Objectives and scope of plant breeding
8. Plant introduction

SECTION - B

Answer all the questions. Each question carries 10 marks **5X10 =50M**

9. a) Describe the ultrastructure of cell wall.

(OR)

b) Write an essay on plastid DNA with a well labeled diagram.

10. a) Discuss the structure of a eukaryotic chromosome with a neat labeled diagram.

(OR)

b) Explain the organization of DNA in chromosomes with suitable theories.

11.a) Discuss complementary and duplicate gene interactions with suitable examples.

(OR)

b) Explain mapping of genes with the help of 3-point test cross.

12. a) Describe the semi-conservative mode of DNA replication.

(OR)

b) Define an operon. Explain the regulation of Lac-operon.

13.a) Write an essay on procedure; applications and uses; advantages and limitations mass selection.

(OR)

b) Give an account of utilization of RFLP and RAPD in molecular plant breeding.

UG ROGRAM (4 Years Honors)

CBCS - 2020-21

SUBJECT
ZOOLOGY

Syllabus and Model Question Papers

TABLE OF CONTENTS

S. No	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of paper titles & Credits	4
	a. Proposed combination subjects:	5
	b. Student eligibility for joining in the course:	5
	c. Faculty eligibility for teaching the course	5
	d. List of Proposed Skill enhancement courses with syllabus, if any	5
	e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources	5
	f. Required instruments/software/ computers for the course	5
	g. List of Suitable levels of positions eligible in the Govt/Pvt organizations	5
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	5
	i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent	5
3	Program objectives, outcomes, co-curricular and assessment methods	6
4	Details of course-wise syllabus for Theory and Lab	10
5	Model Question Papers for Theory and Lab	
6	Details of Syllabus on Skill Enhancement courses and Model Question Papers for Theory and Lab	26

1. Resolutions of the Board of Studies

Meeting held on 22-01-2010Time: 10:00 AM
At: N.T.R Convention Centre,
Adikavi Nannaya University, Rajamahendravaram

Agenda:

1. Adoption of revised-common program structure and revising/updating course-wise syllabi (in the prescribed format) as per the guidelines issued by APSCHE
2. Adoption of regulations on scheme of examination and marks/grading system of the UG program
3. Preparation of Model question papers in prescribed format
4. List of equipment / software requirement for each lab/practical
5. Eligibility of student for joining the course
6. Eligibility of faculty for teaching the course
7. Any specific instructions to the teacher/paper-setter/student/ chief-superintendent/ paper-evaluator
8. List of paper-setters/paper evaluator with phone, email-id in the prescribed format

Members present:

1. Dr P. Vijaya Nirmala
2. Dr. N. Srinivas
3. Dr. P. Anil Kumar
4. Dr. M. Tejomurthy
5. Dr. P. Raghava Kumari
6. K. Babu
7. Dr. P.S.CH. P Deepika Rani
8. Lakshmi Kantham
9. D. Mounika

2. ETAILS OF PAPER TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./Week (Arts/Commerce: 5 and Science: 4+2)	Credits (Arts/ Commerce: 4 and Science: 4+1)	Max. Marks Cont/ Internal/ Mid Assessment	Max. Marks Sem-end Exam
I	1	Animal Diversity – I Biology of Non-Chordates	T	4	4	25	75
	2	Animal Diversity – I Biology of Non-Chordates Lab	L	2	1	-	50
II	3	Animal Diversity –II Biology of Chordates	T	4	4	25	75
	4	Animal Diversity –II Biology of Chordates Lab	L	2	1	-	50
III	5	Cell biology, Genetics, Molecular Biology & Evolution	T	4	4	25	75
	6	Cell biology, Genetics, Molecular Biology & Evolution Lab	L	2	1	-	50
IV	7	Physiology, Cellular Metabolism & Embryology	T	4	4	25	75
	8	Physiology, Cellular Metabolism & Embryology Lab	L	2	1	-	50
	9	Immunology & Animal Biotechnology	T	4	4	25	75
	10	Immunology & Animal Biotechnology Lab	L	2	1	-	50
V							

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

a. Proposed combination subjects: **Chemistry, Botany,Zoology.**

b. Student eligibility for joining in the course:**10+2 Intermediate qualification Bi.P.C Vocational courses MLT, MPHW (Nursing, PT Phytotherapy)**

c. Faculty eligibility for teaching the course: **PG, M.Phil, PhD in Zoology**

d. List of Proposed Skill enhancement courses with syllabus, if any

e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources

f. Required instruments/software/ computers for the course (Lab/Practical course-wise required i.e., for a batch of 15 students)

Sem. No.	**Lab/Practical Name**	**Names of Instruments/Software/ computers required with specifications**	**Brand Name**	**Qty Required**
I	Animal Diversity – I Biology of Non-Chordates			
II	Animal Diversity –II Biology of Chordates			
III	Cell biology, Genetics, Molecular Biology & Evolution			
IV	Physiology, Cellular Metabolism & Embryology			
IV	Immunology &Animal Biotechnology			

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations

Suitable levels of positions for these graduates either in industry/govt organization like. technical assistants/ scientists/ school teachers., clearly define them, with reliable justification

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
1	School Teachers	Private		
2	Technical Assistant	Private		

h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects

S.No	Company/ Govt organization	Position type	Level of Position			
1						
2.						

i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent

3. Program objectives, outcomes, co-curricular and assessment methods

BA/BCOM/BSc/BVoc	ZOOLOGY

1. Aim and objectives of UG program in Subject:

2. Learning outcomes of Subject (in consonance with the Bloom's Taxonomy):

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class- cum-lab work

4. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A**. Measurable:**
   1. Assignments on:
   2. Student seminars (Individual presentation of papers) on topics relating to:
   3. Quiz Programmes on:
   4. Individual Field Studies/projects:
   5. Group discussion on:
   6. Group/Team Projects on:

   B General
   1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
   2. Group Discussions on:
   3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
   4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

4. Details of course-wise Syllabus

BSc/BA/BCom	Subject **(Semester: I)**	**Credits:**
Paper: 1	Title of Course	**Hrs/Wk:**

1. Aim and objectives of Course (Title of the course/paper):

6. Learning outcomes of Course (in consonance with the Bloom's Taxonomy):

7. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

   Unit-1

   Unit-2

   Unit-3

   Unit-4

   Unit-5

   Recommended Text Books:

   Reference books:

8. Details of Lab/Practical/Experiments/Tutorials syllabus:

   Recommended Text books:

   Recommended Reference books:

9. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
      1. Assignments on:
      2. Student seminars (Individual presentation of papers) on topics relating to:
      3. Quiz Programmes on:
      4. Individual Field Studies/projects:
      5. Group discussion on:
      6. Group/Team Projects on:

B. General

1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
2. Group Discussions on:
3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
4. Any similar activities with imaginative thinking.

10. Recommended Continuous Assessment methods:

5. MODEL QUESTION PAPER (Sem-end. Exam)

B.Sc	Subject **(Semester: I)**	**Max. Marks:**
Paper: 1	**(Coursetitle)**	**3Hrs**

B.Sc	Subject **(Semester: V)**	**Credits:**
Paper: 5	**(Course title)**	**Hrs/Wk:**

1. Aim and objectives of Course (Title of the course):

2. Learning outcomes of Course (in consonance with the Bloom's Taxonomy):

3. Detailed Syllabus: Five units (i.e., each unit having 12 hours of class work)

   Unit-1

   Unit-2

   Unit-3

   Unit-4

   Unit-5

   Recommended Text Books:

   Reference books:

4. Details of Lab/Practical/Experiments/Tutorials syllabus:

   Recommended Text books:

   Recommended Reference books:

5. Recommended Co-curricular activities:(Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
      1. Assignments on:
      2. Student seminars (Individual presentation of papers) on topics relating to:
      3. Quiz Programmes on:
      4. Individual Field Studies/projects:
      5. Group discussion on:
      6. Group/Team Projects on:

   B. General
      1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
      2. Group Discussions on:
      3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
      4. Any similar activities with imaginative thinking.

6. Recommended Continuous Assessment methods:

B. Sc	Semester: I	Credits:4
Paper: 1	Animal Diversity – Biology of Nonchordates	Hrs/Wk:4

Course Outcomes: By the completion of the course the graduate should able to –

- Describe general taxonomic rules on animal classification
- Classify Protozoa to Coelenterata with taxonomic keys
- Classify Phylum Platyhemninthes to Annelida phylum usingexamples from parasitic adaptation and vermin composting
- Describe Phylum Arthropoda to Mollusca using examples andimportance of insects and Molluscans
- Describe Echinodermata to Hemichordate with suitable examples andlarval stages in relation to the phylogeny

Learning objectives

- To understand the taxonomic position of protozoa to helminthes.
- To understand the general characteristics of animalsbelonging to protozoa to hemichordate.
- To understand the structural organization of animal'sphylum from protozoa to hemichordate.
- To understand the origin and evolutionary relationship of different phyla from protozoa to hemichordate.
- To understand the origin and evolutionary relationship of different phylum from annelids to hemichordates.

UNIT I:

Principles of Taxonomy – Binomial nomenclature – Rules of nomenclature Whittaker's five kingdom concept and classification of Animal Kingdom.

Phylum Protozoa: General Characters and classification of protozoa up to species level with suitable examples Locomotion, nutrition and reproduction in Protozoan's *Elphidium (typestudy)*

UNIT II:

Phylum Porifera: General characters and classification up to species level with suitable examples Skelton in Sponges Canal system in sponges

Phylum Coelenterate: General characters and classification up to species level with suitable examples Mutagenesis in *Obelia,* Polymorphism in coelenterates, Corals and coral reefs formation

Phylum Ctenophore: General Characters and Evolutionary significance (affinities)

UNIT III:

Phylum Platy helminthes: General characters and classification up to species level with suitable examples Life cycle and pathogen city of *Fasciolahepatica* Parasitic Adaptations in helminthes

Phylum Nemathelminthes: General characters and classification up to species level with suitable examples Life cycle and pathogen city of *Ascaris lumbricoides*

UNIT IV:

Phylum Annelida: General characters and classification up to species level with suitable examples *Hirudinaria granulosa*- External characters, digestive system, excretory system and reproductive system, Evolution of Coelom and Coelomoducts, Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermin compost

Phylum Arthropoda : General characters and classification up to species level with suitable examples Prawn-External characters, appendages, respiratory system and circulatory system Vision and respiration in Arthropoda, Metamorphosis in Insects *Peripatus*- Structure and affinitiesSocial Life in Bees and Termites

UNIT V:

Phylum Mollusca: General characters and classification up to species level with suitable examples ,Pearl formation in Pelecypoda, Sense organs in Mollusca,Torsion in gastropods

Phylum Echinodermata: General characters and classification up to species level with suitable examples, Water vascular system in starfish, Larval forms of Echinodermata

Phylum Hemichordate: General characters and classification up to species level with suitable examples, *Balanoglossus* - Structure and affinities

Co-curricular activities (suggested)

- Preparation of chart/model of phylogenic tree of life, 5-kingdom classification, *Elphidium* life cycle etc.
- Visit to Zoology museum or Coral island as part of Zoological tour
- Charts on life cycle of *Obelia*, polymorphism, spongespicules
- Clay models of canal system in sponges
- Preparation of charts on life cycles of *Fasciola* and *Ascaris*
- Visit to adopted village and conducting awareness campaign on diseases, to people as part of Social Responsibility.
- Plaster-of-Paris or Thermocol model of *Periapt's*
- Construction of a vermicompost in each college, manufacture of manure by students and donating to local farmers
- Models of compound eye, bee hive and terminarium (termitaria) by students
- Visit to apiculture centre and short-term training as part of apprenticeship programme of the govt. of Andhra Pradesh
- Chart on pearl forming layers using clay orThermocol
- Visit to a pearl culture rearing industry/institute
- Live model of water vascular system
- Phylogeny chart on echinoderm larvae and their evolutionary significance
- Preparation of charts depicting the feeding mechanism, 3coeloms, tornarialarvaetc., of *Balanoglossus.*

REFERENCE BOOKS:

1. L.H. Hyman '*The Invertebrates' Vol I, II and V.* – M.C. Graw Hill Company Ltd.
2. Kotpal, R.L. 1988 - 1992 Protozoa, Porifera, Coelenterata, Helminthes,Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.
3. E.L. Jordan and P.S. Verma '*Invertebrate Zoology'* S. Chand and Company.
4. R.D. Barnes '*Invertebrate Zoology'* by: W.B. Saunders CO.,1986.
5. Barrington. E.J.W., '*Invertebrate structure and Function'* by ELBS.
6. P.S. Dhami and J.K. Dhami. Invertebrate Zoology. S. Chand and Co. New Delhi.
7. Parker, T.J. and Haswell'*A text book of Zoology'* by, W.A., Mac Millan Co.London.
8. Barnes, R.D. (1982). *Invertebrate Zoology*, VEdition"

B. Sc	Semester: I	Credits:1
Paper: 1(L)	Animal Diversity – Biology of Nonchordates Lab	Hrs/Wk:2

Learning Outcomes:

- To understand the importance of preservation of museum specimens
- To identify animals based on special identifying characters
- To understand different organ systems through demo or virtual dissections
- To maintain a neat, labeled record of identified museum specimens

Syllabus:

1. **Study of museum slides / specimens / models (Classification of animals up to orders)**

   Protozoa: Amoeba, *Paramecium, Paramecium Binary fission and Conjugation, Vorticella, Entamoebahistolytica, Plasmodium vivax*
   Porifera: *Sycon, Spongilla, Euspongia, Sycon*- T.S & L.S, Spicules, Gem mule
   Coelenterata: *Obelia – Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatula*v.
   Platyhelminthes: *Planaria, Fasciola hepatica, Fasciola*larval forms – Miracidium, Redia, Cercaria, *Echinococcusgranulosus, Taeniasolium, Schistosomahaematobium*vii.
   Nemathelminthes: *Ascaris (Male & Female), Drancunculus, Ancylostoma,Wuchereria*
   Annelida: *Nereis, Aphrodite, Chaetopteurs, Hirudinaria,* Trochophore larva
   Arthropoda: Cancer, Palaemon**,** Scorpion, *Scolopendra, Sacculina, Limulus, Periapt's,* Larvae - Nauplius, Mysis, Zoea, Mouth parts of male &female *Anopheles* and *Culex*, Mouthparts of Housefly and Butterfly. xiii.
   Mollusca: *Chiton, Pila, Unio, Pteredo, Murex, Sepia, Loligo, Octopus, Nautilus,* Glochidium larva
   Echinodermata: *Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Ante don,* Bipinnaria larva
   Hemichordata: *Balanoglossus,* Tornaria larva.
2. **Dissections:**
   Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst
   Insect Mouth Parts
   Laboratory Record work shall be submitted at the time of practicalamination

   An **"Animal album**" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to differentsets of students for thispurpose
   Computer - aided techniques should be adopted or show virtual dissections

RFERENCE MANUALS:

1. Practical Zoology- Invertebrates S.S.Lal
2. Practical Zoology - Invertebrates P.S.Verma
3. Practical Zoology - Invertebrates K.P.Kurl
4. Ruppert and Barnes (2006) Invertebrate Zoology,8th Edition, Holt SaundersInternational Edition

B. Sc	Semester: II	Credits:4
Paper: 2	Animal Diversity – Biology of Chordates	Hrs/Wk:4

Course Outcomes: By the completion of the course the graduate should able to -

- Describe general taxonomic rules on animal classification of chordates
- Classify Protochordata to Mammalian with taxonomic keys
- Understand Mammals with specific structural adaptations
- Understand the significance of dentition and evolutionary significance
- Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalian.

Learning objectives

- To understand the animal kingdom.
- To understand the taxonomic position of Protochordata to Mammalian.
- To understand the general characteristics of animals belonging to Fishes to Reptilians.
- To understand the body organization of Chordata.
- To understand the taxonomic position of Protherian mammals.

UNIT I:

General characters and classification of Chordata upto species level Protochordata- Salient features of Cephalochordate, Structure of *Branchiostoma* Affinities of Cephalochordate. Salient features of Urochordata Structure and life history of *Herdmania* Retrogressive metamorphosis –Process and Significance.

UNIT II:

Cyclostomata, General characters, Comparison of *Petromyzon* and *Myxine* Pisces: General characters and classification of Fishes upto species level ***Scoliodon*****:** External features, Digestive system, Respiratory system, Structure and function of Heart, Structure and functions of the Brain. Migration in Fishes Types of Scales Dipnoi.

UNIT III:

General characters of Amphibian Classification of Amphibian upto species level with examples. ***Ranahexadactyla*****:** External features, Digestive system, Respiratory system, Structure and function of Heart, structure and functions of the Brain

Reptilia: General characters of Reptilia, Classification of Reptilia upto species level with examples

Calotes: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain Identification of Poisonous and non-poisonous snakes and Skull in reptiles.

UNIT IV:

Aves: General characters and classification of Aves upto species level *Columba livia*: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain Migration in Birds Flight adaptation in birds.

UNIT V:

General characters of Mammalian Classification of Mammalian upto species level with examples Comparison of Prototherians, Metatherians and Eutherians Dentition in mammals

Co-curricular activities (suggested)

- Preparation of charts on Chordate classification (with representative animal photos) and retrogressive metamorphosis
- Thermocol or Clay models of Herdmania and Amphioxus
- Visit to local fish market and identification of local cartilaginous and bony fishes
- Maintaining of aquarium by students
- Thermocol model of fish heart and brain
- Preparation of slides of scales of fishes
- Visit to local/nearby river to identify migratory fishes and prepare study notes
- Preparation of Charts on above topics by students (Eg: comparative account of vertebrate heart/brain/lungs, identification of snakes etc.)
- Collecting and preparation of Museum specimens with dead frogs/snakes/lizards etc., and/or their skeletons
- Additional input on types of snake poisons and their antidotes (student activity).
- Collection of bird feathers and submission of report on Plumology
- Taxidermic preparation of dead birds for Zoology museum
- Map pointing of prototherian and metatherianmammals
- Chart preparation for dentition in mammals.

REFERENCE BOOKS:

1. J.Z. Young, 2006. The life of vertebrates. (The Oxford University Press, New Delhi). 646 pages. Reprinted
2. Arumugam, N. Chordate Zoology, Vol. 2. Saras Publication. 278 pages. 200 figs.
3. A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan PressLtd., UK). 852 pages. (Revised edition of Parker &Haswell,1961).
4. M. Ekambaranatha Ayyar, 1973. A manual of zoology. Part II. (S. ViswanathanPvt. Ltd.,Madras).
5. P.S. Dhami& J.K. Dhami, 1981. Chordate zoology. (R. Chand & Co.). 550pages.
6. Gurdarshan Singh & H. Bhaskar, 2002. Advanced Chordate Zoology. Campus Books, 6 Vols., 1573 pp., tables, figs.
7. A.K. Sinha, S. Adhikari& B.B. Ganguly, 1978. Biology of animals. Vol. II. Chordates. (New Central Book Agency, Calcutta). 560 pages.
8. R.L.Kotpal, 2000. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut).632pages.
9. E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092pages.
10. G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169pp.
11. Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p.,figs.
12. Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.

B. Sc	Semester: II	Credits:1
Paper: 2(L)	Animal Diversity – Biology of Chordates Lab	Hrs/Wk:2

Learning Outcomes:

- To understand the Taxidermic and other methods of preservation of chordates
- To identify chordates based on special identifying characters
- To understand internal anatomy of animals through demo or virtual dissections, thus directing the student for "empathy towards the fellow living beings"
- To maintain a neat, labelled record of identified museum specimens

Observation of the Following Slides / Spotters / Models

- Protochordata: *Herdmania, Amphioxus, Amphioxus* T.S through pharynx.
- Cyclostomata: *Petromyzon and Myxine.*
- Pisces: *Pristis, Torpedo, Hippocampus, Exocoetus, Echeneis, Labeo, Catla, Claries, Channa,Anguilla.*
- Amphibian: *Ichthyophis, Amblystoma, Axolotl larva,Hyla,*
- Reptilia: *Draco, Chameleon, Uromastix, Testudo, Trionyx, Russels viper,Naja*
- Krait, *Hydrophis, Crocodile.*
- Aves: *Psittacula, Eudynamis, Bubo, Alcedo.*
- Mammalian: *Ornithorhynchus, Pteropus, Funambulus.*

Dissections-

1. *Scoliodon* IX and X, Cranial nerves
2. *Scoliodon* Brain
3. Mounting of fish scales

Note: 1. Dissections are to be demonstrated only by the faculty or virtual.

2. Laboratory Record work shall be submitted at the time of practical examination.

REFERENCE BOOKS:

1. S.S.Lal, Practical Zoology –Vertebrate
2. P.S.Verma, A manual of Practical Zoology – Chordata

B. Sc	Semester: III	Credits:4
Paper: 3	Cell Biology, Genetics, Molecular Biology and Evolution	Hrs/Wk:4

Course Outcomes:

The overall course outcome is that the student shall develop deeper understanding of what life is and how it functions at cellular level. This course will provide students with a deep knowledge in Cell Biology, Animal Biotechnology and Evolution and by the completionof the course the graduate shall able to–

- To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.
- Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.
- To understand the history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals
- Acquiring in-depth knowledge on various of aspects of genetics involved in sex determination, human karyo typing and mutations of chromosomes resulting in various disorder.
- Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.
- Understand the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society.

Learning Objectives

- To understand the origin of cell and distinguish between prokaryotic and eukaryotic cell.
- To understand the role of different cell organelles in maintenance of life activities.
- To provide the history and basic concepts of heredity, variations and gene interaction.
- To enable the students distinguish between polygenic, sex-linked, and multiple allelic modes of inheritance.
- To acquaint student with basic concepts of molecular biology as to how characters are expressed with a coordinated functioning of replication, transcription and translation in all living beings.
- To provide knowledge on origin of life, theories and forces of evolution.
- To understand the role of variations and mutations in evolution of organisms.

UNIT I:

Cell Biology: Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma Electron microscopic structure of animal cell. Plasma membrane –Models and transport functions of plasma membrane. Structure and functions of Golgi complex, Endoplasmic Reticulum and Lysosomes Structure and functions of Ribosomes, Mitochondria, Nucleus, Chromosomes

(Note: 1. General pattern of study of each cell organelle – Discovery, Occurrence,Number, Origin, Structure and Functions with suitable diagrams**)**

2. Need not study cellular respiration under mitochondrial functions)

UNIT II:

Genetics-I: Mendel's work on transmission of traits Gene Interaction – Incomplete Dominance, Codominance, Lethal Genes Polygene's (General Characteristics & examples); Multiple Alleles (General Characteristics and Blood group inheritance Sex determination (Chromosomal, Genic Balance, Hormonal, Environmental and Haplo- diploidy types of sex determination) Sex linked inheritance (X-linked, Y-linked & XY-linked inheritance)

UNIT III:

Genetics - II: Mutations &Mutagenesis, Chromosomal Disorders (Autosomal and Allosomal) Human Genetics – Karyo typing, Pedigree Analysis(basics)Basics on Genomics and Proteomics

UNIT IV:

Molecular Biology: Central Dogma of Molecular BiologyBasic concepts of-

1. DNA replication – Overview (Semi-conservative mechanism, Semi- discontinuous mode, Origin & Propagation of replication fork)
2. Transcription in prokaryotes – Initiation, Elongation and Termination, Post-transcriptional modifications(basics)
3. Translation – Initiation, Elongation and Termination Gene Expression in prokaryotes (Lac Operon); Gene Expression in eukaryotes

UNIT V:

Origin of life Theories of Evolution: Lamarckism, Darwinism, Germ Plasm Theory, Mutation Theory Neo-Darwinism: Modern Synthetic, Theory of Evolution, Hardy-Weinberg Equilibrium Forces of Evolution: Isolating mechanisms, Genetic Drift, Natural Selection, Speciation

Co-curricular activities (Suggested)

- Model of animal cell
- Working model of mitochondria to encourage creativity among students
- Photo album of scientists of cell biology
- Charts on plasma membrane models/cell organelles
- Observation of Mendelian / Non-Mendelian inheritance in the plants of college botanical garden or local village as a student study project activity
- Observation of blood group inheritance in students, from their parents and grandparents
- Karyo typing and preparation of pedigree charts for identifying diseases in family history
- Charts on chromosomal disorders
- Charts on central dogma/lac Operon/geneticcode
- Model of semi-conservative model of DNA replication
- Model of tRNA and translationechanism
- Power point presentation of transcription or any other topic by students
- Draw geological time scale and highlight important events along the timeline
- Chart on industrial melanism to teach directed selection, Darwin's finches to teach genetic drift, collection of data on weight of children born in primary health centres to teach stabilizing selection etc.

REFERENCE BOOKS:

1. Lodish, Berk, Zipursky, Matsudaria, Baltimore, Darnell 'Molecular Cell Biology' W.H.Freeman and company New York.
2. Cell Biology by DeRobertis
3. Bruce Alberts, Molecular Biology of the Cell
4. Rastogi, Cytology
5. Varma & Aggarwal, Cell Biology
6. C.B. Pawar, Cell Biology
7. Gardner, E.J., Simmons, M.J., Snustad, D.P. (2008).Principles of Genetics. VIII Edition. Wiley India.
8. Snustad, D.P., Simmons, M.J. (2009). Principles of Genetics. V Edition. John Wileyand SonsInc.
9. Klug, W.S., Cummings, M.R., Spencer, C.A. (2012). Concepts of Genetics. X Edition. Benjamin Cummings.
10. Russell, P. J. (2009). Genetics- A Molecular Approach. III Edition. BenjaminCummings.
11. Griffiths, A.J.F., Wessler, S.R., Lewontin, R.C. and Carroll, S.B. Introductionto Genetic Analysis. IX Edition. W. H. Freeman andCo.
12. Ridley, M. (2004). Evolution. III Edition. Blackwell Publishing

13. Molecular Biology by freifielder
14. Instant Notes in Molecular Biology by Bios scientific publishers and Viva BooksPrivate Limited
15. Hall, B. K. and Hallgrimsson, B. (2008). Evolution. IV Edition. Jones and BartlettPublishers
16. Campbell, N. A. and Reece J. B. (2011). Biology. IX Edition, Pearson, Benjamin,Cummings.
17. Douglas, J. Futuyma (1997). Evolutionary Biology. Sinauer Associates.
18. Minkoff, E. (1983). Evolutionary Biology. Addison-Wesley.
19. James D. Watson, Nancy H. Hopkins 'Molecular Biology of the Gene'
20. Jan M. Savage. Evolution, 2nd ed, Oxford and IBH Publishing Co., New Delhi.
21. Gupta P.K..'Genetics

B. Sc	Semester: III	Credits:1
Paper: 3(L)	Cell Biology, Genetics, Molecular Biology and Evolution Lab	Hrs/Wk:2

Learning Objectives:

Acquainting and skill enhancement in the usage of laboratory microscope Hands-on experience of different phases of cell division by experimentation Develop skills on human Karyo typing and identification of chromosomal disorders
To apply the basic concept of inheritance for applied research
To get familiar with phylogeny ad geological history of origin & evolution of animals

I. Cell Biology

1. Preparation of temporary slides of Mitotic divisions with onion root tips
2. Observation of various stages of Mitosis and Meiosis with prepared slides
3. Mounting of salivary gland chromosomes of *Chiranomous*

II. Genetics

1. Study of Mendelian inheritance using suitable examples and problems.
2. Problems on blood group inheritance and sex linked inheritance.
3. Study of human Karyo types (Down's syndrome, Edwards, syndrome, Patausyndrome, Turner's syndrome and Klinefelter syndrome).

III. Evolution

1. Study of fossil evidences.
2. Study of homology and analogy from suitable specimens and pictures.
3. Phylogeny of horse with pictures.
4. Study of Genetic Drift by using examples of Darwin's finches(pictures).
5. Visit to Natural History Museum and submission of report.

REFERENCE BOOKS:

1. Burns GW. 1972. *The Science of Genetics. An Introduction to Heredity.* Mac MillanPubl.Co.Inc.
2. Gardner EF. 1975. *Principles of Genetics.* John Wiley & Sons, Inc. NewYork.
3. Harth and Jones EW. 1998. *Genetics – Principles and Analysis.* Jones and BarHett Publ.Boston.
4. Levine L. 1969. *Biology of the Gene.*Toppan.
5. Pedder IJ. 1972. *Genetics as a Basic Guide.* W. Norton & Company,Inc.
6. Rastogi VB. 1991. *A Text Book of Genetics.*KedarNath Ram Nath Publications, Meerut, Uttar Pradesh,India.
7. Rastogi VB. 1991. *Organic Evolution.*KedarNath Ram Nath Publications,Meerut,Uttar Pradesh,India.
8. Stahl FW. 1965. *Mechanics of Inheritance.* Prentice-Hall.
9. White MJD. 1973. *Animal Cytology and Evolution.* Cambridge Univ.Press.

B. Sc	Semester: IV	Credits:4
Paper: 4	**Animal Physiology, Cellular Metabolism** and **Embryology**	Hrs/Wk:4

Course Outcomes:

This course will provide students with a deep knowledge in Physiology, Cellular metabolism and Molecular Biology and by the completion of the course the graduate shall able to –

- Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.
- Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.
- Describe the structure, classification and chemistry of Biomolecules and enzymes responsible for sustenance of life in living organisms
- Develop broad understanding the basic metabolic activities pertaining to the catabolism and anabolism of various Biomolecules
- Describe the key events in early embryonic development starting from the formation of gametes upto gastrula ion and formation of primary germ layers.

Learning Objectives

- To achieve a thorough understanding of various aspects of physiological systems andtheir functioning in animals.
- To instil the concept of hormonal regulation of physiology, metabolism andreproduction in animals.
- To understand the disorders associated with the deficiency of hormones
- To demonstrate a thorough knowledge of the intersection between the disciplines of Biology and Chemistry.
- To provide insightful knowledge on the structure and classification of carbohydrates, proteins, lipids and enzymes
- To demonstrate an understanding of fundamental biochemical principles such as the function of Biomolecules, metabolic pathways and the regulation of biochemical processes
- To make students gain proficiency in laboratory techniques in biochemistry and orient them to apply the scientific method to the processes of experimentation and hypothesis testing.

UNIT I:

Animal Physiology -I: Process of digestion and assimilation, Respiration - Pulmonary ventilation, transport of oxygen and CO_2, (Note: Need not study cellular respiration here), Circulation - Structure and functioning of heart, Cardiac cycle, Excretion - Structure and functions of kidney urine formation, counter currentMechanism

UNIT II:

Animal Physiology -II: Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers. Muscle contraction - Ultra structure of muscle, molecular and chemical basis of muscle contraction. Endocrine glands - Structure, functions of hormones of pituitary, thyroid, parathyroid, adrenal glands and pancreas, Hormonal control of reproduction in a mammal

UNIT III:

Cellular Metabolism – I(Biomolecules) Carbohydrates - Classification of carbohydrates. Structure of glucose Proteins - Classification of proteins. General properties of amino acids Lipids - Classification of lipids. Enzymes: Classification and Mechanism of Action

UNIT IV:

Cellular Metabolism –II: Carbohydrate Metabolism - Glycolysis, Krebs cycle, Electron Transport Chain, Glycogen metabolism, Gluconeogenesis, Lipid Metabolism – Synthesis of fatty acids, β-oxidation of palmitic acidProtein metabolism - Transamination, Deamination and Urea Cycle

UNIT V:

Embryology: Gametogenesis Fertilization, Types of eggs Types of cleavages,Development of Frog upto formation of primary germ layers

Co-curricular activities (Suggested)

- Chart on cardiac cycle, human lung, kidney/nephron structure etc.
- Working model of human / any mammalian heart.
- Chart of sarcomere/location of endocrine glands in human body
- Chart affixing of photos of people suffering from hormonal disorders
- Student study projects such as identification of incidence of hormonal disorders in the local primary health centre, studying the reasons thereof and measures to curb or any other as the lecturer feels good in nurturing health awareness among students
- Chart on structures of Biomolecules/types of amino acids (essential and non- essential) Chart preparation by students on Glycolysis / kerb's cycle/urea cycle etc.
- Model of electron transport chain
- Preparation of models of different types of eggs in animals
- Chart on frog embryonic development, fate map of frog blastula, cleavage etc.

REFERENCE BOOKS:

1. Eckert H. *Animal Physiology: Mechanisms and Adaptation.* W.H. Freeman &Company.
2. Floray E. *An Introduction to General and Comparative Animal Physiology.* W.B. Saunders Co., Philadelphia.
3. Goel KA and Satish KV. 1989. *A Text Book of Animal Physiology*, Rastogi Publications, Meerut,U.P.
4. Hoar WS. *General and Comparative Physiology.* Prentice Hall of India, NewDelhi.
5. Lehninger AL. Nelson and Cox. *Principles of Biochemistry.* Lange MedicalPublications, NewDelhi.
6. Prosser CL and Brown FA. *Comparative Animal Physiology.* W.B. SaundersCompany,Philadelphia.
7. Developmental Biology byBalinksy
8. Developmental Biology by GerardKarp
9. Chordate embryology by Varma andAgarwal
10. Embryology by V.B.Rastogi
11. Austen CR and Short RV. 1980. *Reproduction in Mammals.* Cambridge UniversityPress.
12. Gilbert SF. 2006. *Developmental Biology,* 8th Edition. Sinauer Associates Inc., Publishers, Sunderland,USA.
13. Longo FJ. 1987. *Fertilization.* Chapman & Hall, London.
14. Rastogi VB and Jayaraj MS. 1989. *Developmental Biology.* KedaraNath Ram Nath Publishers, Meerut, UttarPradesh.
15. Schatten H and Schatten G. 1989. *Molecular Biology of Fertilization.* AcademicPress, NewYork.

B. Sc	Semester: IV	Credits:1
Paper: 4(L)	Animal Physiology, Cellular Metabolism and Embryology Lab	Hrs/Wk:2

Learning Objectives:

- Identification of an organ system with histological structure
- Deducing human health based on the information of composition of blood cells
- Demonstration of enzyme activity *invitro*
- Identification of various Biomolecules of tissues by simple colorimetric methods and also quantitative methods
- Identification of different stages of earl embryonic development in animals

I. Animal physiology

1. Qualitative tests for identification of carbohydrates, proteins and fats
2. Study of activity of salivary amylase under optimum conditions
3. T.S. of duodenum, liver, lung, kidney, spinal cord, bone and cartilage
4. Differential count of human blood

II. Cellular metabolism

1. Estimation of total proteins in given solutions by Lowry's method.
2. Estimation of total carbohydrate by Anthrone method.
3. Qualitative tests for identification of ammonia, urea and uric acid
4. Protocol for Isolation of DNA in animal cells

III. Embryology

1. Study of T.S. of testis, ovary of a mammal
2. Study of different stages of cleavages (2, 4, 8 cell stages)
3. Construction of fate map of frog blastula

REFERENCE BOOKS:

- Harper's Illustrated Biochemistry
- Cell and molecular biology: Concepts & experiments. VI Ed. John Wiley &sons. Inc.
- Lab Manual on Blood Analysis and Medical Diagnostics, S. Chand and Co. Ltd.
- Laboratory techniques by Plummer

B. Sc	Semester: IV	Credits:4
Paper: 5	Immunology and Animal Biotechnology	Hrs/Wk:4

Course Outcomes:

This course will provide students with a deep knowledge in immunology, genetics, embryology and ecology and by the completion of the course the graduate shall able to –

- To get knowledge of the organs of Immune system, types of immunity, cells and organs of immunity.
- To describe immunological response as to how it is triggered (antigens) and regulated(antibodies)
- Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.
- Get familiar with the tools and techniques of animal biotechnology.

Learning Objectives

- To trace the history and development of immunology
- To provide students with a foundation in immunological processes
- To be able to compare and contrast the innate versus adaptive immune systems and humoral versus cell-mediated immune responses
- Understand the significance of the Major His to compatibility Complex in terms of immune response and transplantation
- To provide knowledge on animal cell and tissue culture and their preservation
- To empower students with latest biotechnology techniques like stem cell technology, genetic engineering, hyridoma technology, transgenic technology and their applicationin medicine and industry for the benefit of living organisms
- To explain *in vitro* fertilization, embryo transfer technology and other reproduction manipulation methodologies.
- To get insight in applications or recombinant DNA technology in agriculture, production of therapeutic proteins.
- To understand principles of animal culture, media preparation.

UNIT I:

Immunology – I (Overview of Immune system): Introduction to basic concepts in Immunology, Innate and adaptive immunity, Vaccines and Immunization programme , Cells of immune system,Organs of immune system

UNIT II: Immunology – II (Antigens, Antibodies, MHC and Hypersensitivity)

Antigens: Basic properties of antigens, B and T cell epitomes, happens and adjuvant; Factors influencing immunogenicity

Antibodies: Structure of antibody, Classes and functions of antibodies Structure and functions of major his to compatibility complexes, Exogenous and Endogenous pathways of antigen presentation and processing Hypersensitivity – Classification and Types

UNIT III:

Techniques: Animal Cell, Tissue and Organ culture media: Natural and Synthetic media, Cell cultures: Establishment of cell culture (primary culture, secondary culture, types of cell lines; Protocols for Primary Cell Culture); Established Cell lines (common examples such as MRC, HeLa, CHO, BHK, Vero); Organ culture; Cryopreservation of cultures

Stem cells: Types of stem cells and applications, Hybridoma Technology: Production & applications of Monoclonal antibodies (mAb)

UNIT IV:

Applications of Animal Biotechnology: Genetic Engineering: Basic concept, Vectors, Restriction Endo nucleases andRecombinant DNA technology

Gene delivery: Microinjection, electroportion, biolistic method (gene gun), liposome and viral-mediated gene delivery

Transgenic Animals: Strategies of Gene transfer; Transgenic - sheep, fish; applications Manipulation of reproduction in animals: Artificial Insemination, *Invitro* fertilization, super ovulation, Embryo transfer, Embryo cloning

UNIT V:

PCR: Basics of PCR.

DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing (2hrs)

Hybridization techniques: Southern, Northern and Western blotting DNA fingerprinting: Procedure and applications

Applications in Industry and Agriculture: Fermentation: Different types of Fermentation and Downstream processing;

Agriculture: Monoculture in fishes, polyploidy in fishes

Co-curricular activities (suggested)

- Organizing awareness on immunization importance in local village in association with NCC and NSS teams.
- Charts on types of cells and organs of immune system
- Student study projects on aspects such as – identification of allergies among students (hypersensitivity), blood groups in the class (antigens and antibodies duly reported) etc., as per the creativity and vision of the lecturer and students
- Visit to research laboratory in any University as part of Zoological tour and exposure and/ or hands-on training on animal cell culture.
- Visit to biotechnological laboratory in University or any central/state institutes and create awareness on PCR, DNA finger printing and blot techniques or Visit to a fermentation industry or Visit to a local culture pond and submit report on culture of fishes etc.

REFERENCE BOOKS:

1. Immunology by Ivan M.Riott
2. Immunology by Kubey
3. Sree krishna V. 2005. *Biotechnology –I, Cell Biology and Genetics.* New AgeInternational Publ. New Delhi, India.

B. Sc	Semester: IV	Credits:1
Paper: 5(L)	Immunology and Animal BiotechnologyLab	Hrs/Wk:2

Learning Objectives:

a. Acquainting student with immunological techniques vis-à-vis theory taught in the classroom
b. Interconnect the theoretical and practical knowledge of immunity with the outer world for the development of a healthier life.
c. Demonstrate basic laboratory skills necessary for Biotechnology research
d. Promoting application of the lab techniques for taking up research in higher studies

I. Immunology

1. Demonstration of lymphoid organs (as per UGC guidelines)
2. Histological study of spleen, thymus and lymph nodes (through prepared slides)
3. Blood group determination
4. Demonstration of

    a. ELISA
    b. Immune electrophoresis

II. Animal biotechnology

1. DNA quantification using DPA Method.
2. Techniques: Western Blot, Southern Hybridization, DNA Fingerprinting
3. Separation, Purification of biological compounds by paper, Thin-layer and Column chromatography
4. Cleaning and sterilization of glass and plastic wares for cell culture.
5. Preparation of culture media.

REFERENCE BOOKS:

1. Immunology Lab Biology 477 Lab Manual; Spring 2016 Dr. Julie Jameson
2. Practical Immunology A Laboratory Manual; **LAP LAMBERT AcademicPublishing**
3. Manual of laboratory experiments in cell biology by Edward
4. Laboratory Techniques by Plummer

MODEL QUESTION PAPERS(Semester - End)

B .Sc DEGREE EXAMINATIONS

SEMESTER - I

Course - 1:ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

Time: 3hrs. **Max. Marks: 75**

Section - A

Answer any FIVE of the following: **5x5=25M**

Draw labeled diagrams wherever necessary

1. Bionomial nomenclature
2. Whittaker's concept
3. Hexactinellida
4. Polymorphism
5. Parasitic adaptations
6. Coelom and coelomic ducts
7. Cephalic appendages in Prawn
8. Pearl formation

Section - B

Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9. a. Describe the structure and life history of *Elphidium.*

OR

b. Classify the phylum Protozoa with suitable examples up to species level.

10. a. Describe various types of canal systems in sponges.

OR

b. Write an essay on corals and coral reef formation.

11. a. Write in detail about the life history of *Fasciola hepatica.*

OR

b. Discuss the life cycle of Ascaris lumbricoides. Add a note on its Pathogenecity.

12. a. Explain the process and economic importance of vermiculture.

OR

b. Describe the structure of *Peripatus.* Add a note on its affinities.

13. a. Give an account on water vascular system in star fish.

OR

b. Write in detail about the structure and affinities of Balanoglossus.

MODEL QUESTION PAPERS(Semester - End)

B .Sc DEGREE EXAMINATIONS

SEMESTER - II

Course - 2: **ANIMAL DIVERSITY – BIOLOGY OF CHORDATES**

Time: 3hrs. **Max. Marks: 75**

Section - A

Answer any FIVE of the following: **5x5=25M**

Draw labeled diagrams wherever necessary

1. *Amphioxus*
2. Placoidscale
3. Quillfeather
4. Prototheria
5. Anadromousmigration
6. *Draco*
7. Emu
8. Apoda

Section - B

Answer any FIVE of the following: **5x10=50M**

Draw labeled diagrams wherever necessary

9. a. Explain the life history of Herdmania

OR

b. Explain the origin and general characters of chordates

10. a. Compare the characters of *Petromyzon* and *Myxine*

OR

b. Describe the structure of heart in *Scoliodon*

11. a. Describe the brain of *Ranahexadactyla*

OR

b. Explain the external features of *Calotes*

12. a. Write an essay on flight adaptations in birds

OR

b. Explain the respiratory system of *Columba livia*

13. a. Compare the characters of Metatheria and Eutheria

OR

b. Write an essay on dentition in mammals

MODEL QUESTION PAPERS(Semester - End)

B .Sc DEGREE EXAMINATIONS

SEMESTER - III

Course - 3: **CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION**

Time: 3hrs. **Max. Marks: 75**

Section - A

Answer any FIVE of the following: **5x5=25**

Draw labeled diagrams wherever necessary

1. Prokaryotic cell
2. Golgi complex
3. Polygenes
4. Multiple alleles
5. Mutations
6. Karyotyping
7. Lac operon concept
8. Genetic drift

Section - B

Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9. a. Describe the ultra structure of animal cell

OR

b. Explain the structure of mitochondria. Add a note on its functions.

10. a. Write an essay on gene interactions

OR

b. Discuss sex linked inheritance.

11. a. What are chromosomal disorders? Explain various types of autosomal and allosomal disorders

OR

12. a. Give an account of DNA replication.

OR

b. Explain the mechanism of Prokaryotic transcription.

13. a. An essay on modern synthetic theory of evolution.

OR

b. Define isolation. Discuss various isolating mechanisms.

MODEL QUESTION PAPERS(Semester - End)

B .Sc DEGREE EXAMINATIONS

SEMESTER - IV

Course - 4: **ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY**

Time: 3hrs. **Max. Marks: 75**

Section - A

Answer any FIVE of the following: **5x5=25**

Draw labeled diagrams wherever necessary

1. Assimilation
2. Cardiac cycle
3. Ultra structure of muscle
4. Pancreas
5. Structure of glucose
6. Lipids
7. Gluconeogenesis
8. Types of eggs

II.Section - B

Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9. a. Explain the process of digestion.

OR

b. Describe the structure and function of heart

10. a. Give an account of nerve impulse transmission.

OR

b. Write an essay on the hormonal control of reproduction in mammals

11. a. Write an essay on the classification of carbohydrates

OR

b. Classify the enzymes. Discuss the mechanism of enzyme action.

12. a. Write an account on Kreb's cycle.

OR

b. Explain B- oxidation of palmitic acid

13. a. Discuss the process of fertilization.

OR

b. Write an essay on gameto genesis.

MODEL QUESTION PAPERS(Semester - End)

B .Sc DEGREE EXAMINATIONS

SEMESTER - IV

Course - 5: **IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

Time: 3hrs. **Max. Marks: 75**

Section - A

Answer any FIVE of the following: **5x5=25**

Draw labeled diagrams wherever necessary

1. Vaccines
2. Primary lymphoid organs
3. Hapten
4. Hypersensitivity
5. Natural media
6. Cell lines
7. Endo nucleases
8. Polyploidy in fishes

Section - B

Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9. a. Define immunity. Write in detail about innate immunity.

OR

b. Explain various cells of immune system

10. a. Describe the structure of antibody. Add a note on their functions.

OR

b. Describe the structure of MHC molecules. Discuss their role in the mechanism of exogeneous and endogeneous pathway of antigen processing and presentation

11. a. Write an essay on different types of stem cells and their applications

OR

b. Explain the production and applications of monoclonal antibodies.

12. a. Write an account on recombinant DNA technology.

OR

b. Write an essay on transgenic animals

13. a. Explain hybridization techniques.

OR

b. Write an essay on PCR

UG PROGRAM (4 Years Honors)

CBCS-2020-21

B.Sc/B.A
ECONOMICS

Syllabus and Model Question Papers

DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type **(T/L/P)**	Hrs/Week **(Arts:5)**	Credits **(Arts:4)**	Max. Marks **Cont/ Internal /Mid -Assessment**	Max. Marks **Sem- end Exam**
I	1	Microeconomic Analysis	T	5	4	25	75
II	2	Macroeconomic Analysis	T	5	4	25	75
III	3	Development Economics	T	5	4	25	75
IV	4	Economic Development in India and Andhra Pradesh	T	5	4	25	75
	5	Statistical Methods for Economics	T	5	4	25	75

Note: *Course type code: T: Theory, L: Lab, P: Problemsolving

B.Sc/B.A.	Semester – I	Credits: 4
Course:1	Microeconomic Analysis	Hrs/Wk: 5

Learning Outcomes For The Course

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way(Knowledge)
   a) the differences between microeconomic analysis and macro economic analysis
   b) various laws and principles of microeconomic theory under consumption,
2. Explains(understanding)
   a) Various terms and concepts relating to microeconomic analysis with the help of examples of real life.

a. Consumer's equilibrium and consumer's surplus using indifference curve analysis.

b. various laws and principles of consumption, production, and income distribution

c. determination of price and output discriminating different market conditions in short term and long term.

3. Critically examines using data and figures (analysis and evaluation)

a. various laws and principles of microeconomic analysis and market conditions

b. Application of the concept of demand elasticity and its relation with Average and Marginal Revenue.

c. the relationship between average and marginal cost/revenue both in long term and

4. Draws critical diagrams and graphs to explain and examine the application of various laws and principles of micro economic analysis.

UNIT I:

Economic Analysis and Methodology: Meaning and Definitions of Economics- Scarcity and Choice as fundamental problems of economics - Scope and Importance of Micro economic analysis - Micro and Macro economic Analysis –Inductive and Deductive methods – partial and general equilibrium - Principlesof Micro economics.

UNIT II:

Theory of Consumption: Concept of Demand -Factors determining demand - Law of Demand - reasons and exceptions - Elasticity of Demand –Cardinal utility; Diminishing Marginal Utility and Equi Marginal Utility - Ordinal utility: Indifference Curve analysis: Properties of Indifference curves, Indifference Curve Map -Marginal Rate of Substitution - Budget Line - Changes -Consumer Equilibrium under Indifference Curve Analysis – Consumers' Surplus.

UNIT III:

Theory of Production: Concept and Objectives of Firm - Production Function: Cobb- Douglas Production Function-Law of Variable Proportions -Laws of Returns to Scale - Economies of large scale - Concepts of Cost - Total, Average and Marginal Costs - Law of Supply - Concept of Revenue : Total, Average and Marginal Revenues - Relation between Average and Marginal Revenues and elasticity of Supply.

UNIT IV:

Theory of Exchange: Concepts of Market: Criteria for Classification of Markets - Perfect Competition– Conditions, Price and Output determinations; Monopoly : Conditions, Price and Output Determination - Price Discrimination; Monopolistic Competition - Assumptions - Price and output determination - Selling Costs ; Oligopoly -Types- Kinky demand curve and Price rigidity

UNIT V:

Theory of Distribution: The concepts of Functional and Personal Distribution of Income - Marginal Productivity Theory of Distribution - Modern Theory of Distribution -Concept of Rent - Ricordian Theory of Rent – Marshall's concepts of Economic Rent and Quasi Rent; Theories of Wage Determination: Subsistence Theory and Standard of Living Theory - Modern Theory of Wages; Classical Theory of Interest -Liquidity Preference Theory of Interest; Theories of Profit: Risk and Uncertainty, Dynamic and Innovations Theories.

REFERENCE BOOKS:

1. A. Koutsoyiannis, ***Modern Microeconomics*** – Macmillan,London.
2. A. W. Stonierand D.C. Hague, ***A Text book of Economic Theory*** - ELBS & Long man Group, London.
3. H. L. Ahuja, ***Advanced Economic Theory***, S. Chand,2004.
4. P. N. Chopra, ***Principles of Economics***, Kalyani Publishers, Ludhiana,2018.
5. H.S. Agarwal: ***Principles ofpEconomics***.
6. P.A Samuelson & W.D. Nordhaus - ***Macroeconomics***, Tata McGraw Hill, 18/e,2005
7. M. L. Seth, ***Microeconomics,*** Lakshmi Narayan Agarwal,2006.
8. D.M. Mithani&G.K. Murthy, ***Fundamentals of Business Economics***, Himalaya Publishing, 2007.
9. ***Telugu Academi Publications onMicroeconomics.***
10. ***Microeconomics***, Spectrum Publishing House, Hyderabad,2017.

Recommended Co-curricular Activities:

1. Assignments and Student Seminars on themes of critical appreciation of microeconomic theory and relevant issues of current importance in Indian and AP economies
2. Quiz testing the understanding and application of various microeconomic concepts and theories
3. Group Study projects on the trends in the demand, supply and prices of goods and services in the local markets
4. Survey and analysis of data published in the Economic Survey of GOI and the Socio-economic survey of the State Government relevant to microeconomic aspects. (Assignments preferably for all students in each semester. In respect of others, as far as possible, all students shall participate in each of the co-curricular activity by the end of fourth semester, @ roughly a fourth of total students in each semester)

B.Sc/B.A.	Semester – II	Credits: 4
Course:2	Macro Economic Analysis	Hrs/Wk: 5

Learning Outcomes For The Course

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way(knowledge):
   Various concepts, definitions, laws and principles of macroeconomic theory with reference to income, employment, money, banking and finance
2. Explains(understanding):
   a) The difference between various concepts and components of national income with illustrations and methods of measuring national income
   b) various terms, concepts, laws and principles, theories relating to income, employment, consumption, investment, money, price-level and phases of trade cycles
   c) functions of commercial banks and central bank, creation and control of credit
3. Critically examines using data and figures (analysis and evaluation)
   a) in order to understand the interrelationship between various components of national income.
   b) the theories of macroeconomics with reference to their assumptions ,implications and applicability.
   c) Empirical evidences of Consumption and Investment Functions and factors influencing them
4. Draws critical formulae, diagrams and graphs.
   a. consumption and investment functions; concepts of multiplier and accelerator
   b. price indices, inflation and trade cycles

UNIT I:

National Income: Macroeconomics - Definition, Scope and Importance - Difference between Micro economic and Macro economic Analyses – Circular Flow of Income -National Income: Definitions, Concepts, Measurement of National Income - Difficulties - Importance - Concept of Green Accounting

UNIT II:

Theory of Employment: Classical Theory of Employment - Say's Law of Markets - Criticism - Keynesian Theory of Employment - Consumption Function - Keynes' Psychological Law of Consumption - Average and Marginal Propensity to Consume - Factors determining Consumption Function- Investment Function: Marginal Efficiency of Capital -Multiplier and Accelerator - Keynesian Theory of Employment.

UNIT III:

Money and Banking: Definitions of Money - Concepts of Money, Liquidity and Finance - Gresham's Law - RBI classification of Money - Theories of Money: Fisher and Cambridge (Marshall, Pigou, Robertson and Keynes equations) - Banking - Definition and types of Banking - Commercial Banks - Functions -Recent Trends in Banking - Mergers and Acquisitions - Central Bank - Functions - Control of Credit by Central Bank - NBFCs- Factors contributing to their Growth and their Role.

UNIT IV:

Inflation and Trade Cycles: Inflation: Concepts of Inflation, deflation and stagflation - Phillip's Curve - Measurement of Inflation - CPI and WPI -Types of Inflation - Causes and Consequences of Inflation -Measures to Control Inflation. Trade Cycles: Phases of Trade Cycle -Causes and Measures to control Trade Cycles.

UNIT V:

Finance and Insurance: Financial Assets and Financial Instruments - Financial Markets - Functions of Money Market - Functions of Capital Market - Stock Market - Exchanges – Index : Sensex and Nifty – Concept of Insurance -Types and Importance of Insurance.

REFERENCE BOOKS:

1. Dillard. D., ***The Economics of John Maynard Keynes***, Cross by Lockwood and sons,London
2. M. C. Vaish - ***Macroeconomic Theory,*** Vikas Publishing House, NewDelhi.
3. S. B Guptha - ***Monetary Economics,*** S. Chand & Co,Delhi
4. P. N. Chopra, ***Macroeconomics***, Kalyani Publishers, Ludhiana,2014
5. D. M. Mithani, ***Macro Economic Analysis and Policy***, Oxford and IBH, NewDelhi
6. M N Mishra & S B Mishra, ***Insurance Principles &Practice,*** SChand.
7. Lewis, M.K and P.DMizan - ***Monetary Economics***, Oxford University Press, NewDelhi
8. Central Statistical Organization, ***National AccountsStatistics***.
9. M.L.Seth, Macroeconomics, Lakshmi Narayan Agarwal,2006.
10. K. P. M. Sundaram, ***Money, Banking & International Trade***, Sultan Chand, 2006.
11. R. R. Paul, Monetary Economics, Kalyani Publishers, Ludhiana,2018
12. ***Macroeconomics***, Spectrum Publishing House, Hyderabad,2016

Recommended Co-curricular Activities:

1. Assignments on trends in national income, money supply and inflation
2. Student Seminars/webinars on macroeconomic themes of contemporary importance for Indian economy (Eg., Covid-19 impact on aggregate demand, supply chain disruption, policy response etc.,)
3. Quiz to test critical understanding of the concepts and theories of macroeconomics and their application in practice
4. Group discussions on monetary policy and its effectiveness with reference to recent developments.
5. Group project work to study the trends in national income, inflation, money supply etc.,
6. Chart/poster presentation on National Income Trends, inflation, aggregate demand etc.,
7. Web-based assignment on Banking/money

B.Sc/B.A.	Semester – III	Credits: 4
Course:3	Development Economics	Hrs/Wk: 5

Learning Outcomes For The Course

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way(Knowledge):
   Various concepts and definitions and indicators relating to economic growth and Development including recent developments
2. Explains(understanding):
   a) Distinction between growth and development with examples
   b) Characteristics of developing and developing economies and distinction between the two
   c) factors contributing to development, Choice of Techniques and a few important models and strategies of growth
3. Critically examines using data and figures (analysis and evaluation)
   a. the theoretical aspects of a few models and strategies of economic growth
   b. role and importance of various financial and other institutions in the context of India's economic development
4. Draws critical diagrams and graphs.
   a. to explain the models and strategies
   b. to highlight empirical evidences to support the strategies

UNIT I:

Economic Growth and Development: Economic Development as a Branch of Study of Economics – Scope and Importance - Distinction between Economic Growth and Economic Development -Measures of Economic Development and their limitations - Relevance of Herd (Group) Immunity in the context of COVID 19 - three core values of economic development : Sustainability, Self-esteem and Freedom – Economy and Environmen : Concepts of sustainable development and inclusive growth**.**

UNIT II:

Modern Economic Growth: Characteristics of Underdeveloped Countries - World Bank and IMF Classification of countries - Modern economic growth – Kuznets' Six Characteristics - Obstacles to economic development - Vicious Circle of Poverty and cumulative causation - Factors of economic growth: Economic and Non-economic - Capital Formation – Foreign and Domestic capital, Debt and Disinvestment.

UNIT III:

Theories of Development and Underdevelopment: Classical Theory: Adam Smith, Ricardo and Malthus -Marxian Theory - Schumpeter Theory -Rostow's Stages of Economic Growth - Harrod- Domar two sector model -Solow's Model and Robinson's Golden Age.

UNIT IV:

Strategies of Economic Development: Strategies of Economic Development – Big Push - Balanced Growth -Unbalanced Growth - Mahalanobis Model - Agriculture vs Industry -Capital Intensive Technology vs Labour Intensive Technology -Role of Infrastructure in Economic Development.

UNIT V:

Institutions and Economic Development: Role of State in Economic Development -Role of Markets - Market Failure and Regulation by State -Public sector vs Private sector -Economic Planning – concept, objectives and types -NITI Ayog - Economic Federalism -Financial Institutions and Economic Development -Role of International Institutions-IDBI, ADB, IMF - Foreign Trade - FIIs and FDIs.

REFERENCE BOOKS:

1. Dhingra, I.C., ***Indian Economy***, Sultan Chand, New Delhi, 2014.
2. Gaurav Datt and Ashwani Mahajan, ***Datt and Sundharam's Indian Economy***, S.Chand& Co.,2016.
3. G. M. Meier, ***Leading Issues in Economic Development***, Oxford University Press, New York,3/e.
4. M. P. Todaro and Stephen C. Smith, ***Economic Development***, 10/e, Indian Edition Published by Dorling Kindersley India Pvt. Ltd.2012.
5. M. L. Koncham, Economic development and planning, Himalayapublications
6. S.K.Misra&V,K,Puri, ***Indian Economy***, Himalaya Publishing House,2015.
7. R.S.Rao, V.Hanumantha Rao &N.Venu Gopal (Ed.), ***Fifty Years of Andhra Pradesh (1956-2006),*** Centre for Documentation, Research and Communications, Hyderabad, 2007.
8. G. Omkarnath, ***Economics - A Primer for India*** - Orient Blackswan,2012.
9. Economic development and growth, Spectrum Publishing House, Hyderabad,2016

Recommended Co-curricular Activities:

1. Assignments on the models and the strategies of economic development adopted in Indian economy
2. Student Seminar on development oriented themes relating to Indian economy
3. Quiz to test critical understanding of the fundamental concepts pf growth and development and the growth models and strategies
4. Group discussion on the effectiveness of the roles played by various institutions in India's economic development
5. Group project work to examine specific aspects of growth like poverty, unemployment, human development, gender development as Indian experience in the context of economic development preferably at the state and local level
6. Poster presentation

B.Sc/B.A.	Semester – IV	Credits: 4
Course:4	Economic Development- India And Andhra Pradesh	Hrs/Wk: 5

Learning Outcomes For The Course

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way(Knowledge)
   a. leading issues of Indian economic development with reference to potential for growth, obstacles and policy responses
   b. Objectives, outlays and achievements of economic plans and growth strategies
2. Explains(understanding)
   a. Available Resources, demographic issues, general problems of poverty and unemployment and relevant policies
   b.Sector specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy and infrastructure issues of AP economy
   c. Indian Tax system, recent changes, issues of public expenditure and public debt, recent finance commissions and devolution of funds
   d. Major issues of economic development of Andhra Pradesh after bifurcation and Central assistance
3. Critically examines using data and figures (analysis and evaluation)
   a. Leading issues of current importance relating to India and AP economy, major policies and programmes
   b. Covid– 19 and its impact on Indian economy
4. Uses official statistical data and reports including tables and graphs
   a. To explain the achievements of Indian economy with reference to the objectives of planning and policy and make critical evaluation.

UNIT I:

Basic Features: Basic characteristics of Indian Economy as a developing economy – Economic development since independence - Objectives and achievements of planning – Planning Commission/NITI Ayog and their approaches to economic development - India's Rank in Global Human Development Index .

UNIT II:

National Income and Demography: Trends in National income - Demographic trends - Poverty and Inequalities – Occupational Structure and Unemployment - Various Schemes of employment generation and eradication of poverty – Issues in Rural Development and Urban Development –Intra-state and Inter-state Labour Migration and unorganized sector Problems of Migrant Labour

UNIT III:

Agricultural and Industrial Developments: Indian Agriculture – Agricultural Strategy and Agricultural Policy – Agrarian Crisis and land reforms – Agricultural credit – Minimum Support Prices -Malnutrition and Food Security - Indian Industry - Recent Industrial Policy – Make-in India – Start-up and Stand-up programmes – SEZs and Industrial Corridors - Economic Reforms and their impact - Economic initiatives by government of India during COVID - Atmanirbhar Bharat package.

UNIT IV:

Indian Public Finance: Fiscal policy- Indian Tax System and Recent changes – GST and its impact on Commerce and Industry – Centre, States financial relations- Recommendations of Recent Finance Commission – Public Expenditure and Public Debt –Concepts of Budget.

UNIT V:

Andhra Pradesh Economy: The basic characteristics of Andhra Pradesh economy after bifurcation in 2014 – Impact of bifurcation on the endowment of natural resources and state revenue – new challenges to industry and commerce - the new initiatives to develop infrastructure – Power and Transport –Health and Education- Information Technology and e-governance – Urbanization and smart cities – Skill development and employment –Recent Social welfare programmes.

REFERENCE BOOKS:

1. Dhingra, I.C., ***Indian Economy***, Sultan Chand, New Delhi, 2014.
2. Gaurav Datt and Ashwani Mahajan, ***Datt and Sundharam's Indian Economy***, S.Chand& Co.,2016.
3. G. M. Meier, ***Leading Issues in Economic Development***, Oxford University Press, New York,3/e.
4. M. P. Todaro and Stephen C. Smith, ***Economic Development***, 10/e, Indian Edition Published by Dorling Kindersley India Pvt. Ltd.2012.
5. P. K. Dhar, ***Indian Economy: Its Growing Dimensions, Kalyani Publishers, Ludhiana, 2018.***
6. Reserve Bank of India, ***Handbook of Statistics on Indian Economy***(Latest).
7. S.K.Misra&V,K,Puri, ***Indian Economy***, Himalaya Publishing House,2015.
8. R.S.Rao, V.Hanumantha Rao &N.Venu Gopal (Ed.), ***Fifty Years of Andhra Pradesh (1956-2006),*** Centre for Documentation, Research and Communications, Hyderabad, 2007.
9. G. Omkarnath, ***Economics - A Primer for India*** - Orient Blackswan,2012.
10. A.P Economy- Telugu Academy, 2018

Recommended Co-curricular Activities:

1. Assignments on specific issues of contemporary importance with reference to problems and remedial policies
2. Student Seminars on leading economic challenges, the effectiveness of relevant policies and programmes
3. Quiz to examine the knowledge and critical understanding of major policies, programmes achievements, failures relating to all sectors
4. Group discussions to promote critical understanding and evaluation capabilities of the students on major areas of Indian and AP economy
5. Group project work to study the implementation and effectiveness of major government schemes of development, poverty eradication and employment promotion etc.,
6. PPT presentation and participation in webinars to help the students acquire and adopt ITC skills in the process of learning
7. Field Visits to Agricultural farm/market/SSIs to understand the ground realities of economic situation of the country and the state.

B.Sc/B.A.	Semester – IV	Credits: 4
Course:5	**Statistical Methods for Economics**	Hrs/Wk: 5

Learning Outcomes For The Course

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way(Knowledge)
   a. the definitions, terms and their meaning relating to statistical methods
   b. various formulae used to measure central tendency, correlation regression and Indices
2. Explains(understanding)
   a. Importance of statistics and its applications
   b. The method of classification of primary data
   c. Uses of Correlation and Regression analysis, time series and index numbers in economic analysis
3. Analyses and solves using given data and information (analysis and evaluation)
   a. different kinds of statistical problems using various principles and formulae relating to central tendency, correlation, regression, time series and indices
   b. to interpret data and suggest solutions to economic problems
4. Draws critical diagrams and graphs.
   a. Histogram, Frequency Polygon and Frequency Curve

b. More than cumulative and less than cumulative frequency curves (Ogive)

   c. Different types of Bar diagrams
   d. Pie Diagram and its uses in economic analysis

UNIT I:

Nature and Definition of Statistics: Introduction to Statistics – Definition, scope, importance and limitations of Statistics – Primary and Secondary data- Census and Sampling techniques and their merits and demerits.

UNIT III:

Diagrammatic Analysis: Collection of data - Schedule and questionnaire – Frequency distribution – Tabulation – diagram and graphic presentation of data – Histogram, Frequency Polygon, Cumulative Frequency Curves - Bar Diagrams and Pie Diagram.

UNIT IV:

Measures of Central Tendency and Dispersion: Measures of Central Tendency and Dispersion - Types of averages- Arithmetic Mean, Geometric Mean, Harmonic Mean – Median – Mode – Dispersion - Range, Quartile Deviation, Mean Deviation, Standard Deviation- Coefficient of Variation. **Correlation and Regression:** Correlation and Regression - Meaning, Definition and uses of Correlation- Types of Correlation- Karl Pearson's Correlation coefficient - Spearman's Rank Correlation- Regression Equations - utility of regression analysis – Demand forecasting.

UNIT V:

Time Series and Index Numbers: Time Series and Index Numbers: Definition and components of Time Series – Measurement of Time Series – Moving Average and the Least Squares Method – Index Numbers - Concepts of Price and Quantity Relatives – Laspeyer's, Paasche's and Fisher's Ideal Index Numbers – Uses and Limitations of IndexNumbers.

REFERENCE BOOKS:

1. B. R. Bhat, T. Srivenkataramana and K.S. MadhavaRao (1996): ***Statistics: A Beginner's Text***, Vol. I, New Age International (P)Ltd.
2. Goon A.M, Gupta M.K., Das Gupta B. (1991), ***Fundamentals of Statistics,*** Vol. I, World Press,Calcutta.
3. M. R. Spiegel (1989): ***Schaum's Outline of Theory and Problems in Statistics,***Schaum's OutlineSeries.
4. F.E.Croxton,D.J.CowdenandS.KelinS(1973),***AppliedGeneralStatistics,*** Prentice Hall of India. 2.
5. S.P. Gupta, ***Statistical Methods*** , S. Chand & Co,1985
6. S. C. Guptha, ***Fundamentals of Statistics***, Himalaya Publishing House,Hyderabad.
7. Digambar Patri and D. N. Patri, ***Statistical Methods for Economics,*** Kalyani Publishers, Ludhiana, 2017.
8. Telugu Akademy Book, ParimanathmakaPaddathulu (ForB.A.).

Recommended Co-curricular Activities:

1. Assignments of the application of various statisticalmethods
2. Student Seminar on themes requiring usage of tables, diagrams, statistical analysis andinterpretation
3. `Group project work for collection of data on locally relevant economicproblems
4. Market survey on demand, supply, sales, prices of different kinds of projects like food items, FMCG, other consumable durables etc., etc., and Statistical Analysis- Mini Project and also income elasticity of demand for suchproducts

MODEL QUESTION COURSE FORMATE

SECTION - A

Write Short Answer for any FIVE of the following

Each question carries 5 marks (5 x 5 = 25 Marks)

1	
2	
3	
4	
5	
6	
7	
8	

(Total 8 Questions in Section A)

SECTION – B

Answer the following questions

Each question carries 10 marks (5 x 10 = 50 Marks)

9	(a) Or (b)
10	(a) Or (b)
11	(a) Or (b)
12	(a) Or (b)
13	(a) Or (b)

(Total 10 Questions in Section–B. Internal choice for all questions from 9 to 13

(Two questions given under choice shall be from the same unit)

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UG PROGRAMME (4 Years Honors)
CBCS - 2020-21

(With History, Economics and Political Science Disciplines)

B.A
HISTORY

Syllabus and Model Question Papers

DETAILS OF COURSE TITLES & CREDITS

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./ Week (Arts/ Commeerce: 5)	Credits (Arts/ Commeerce: 4)	Max. Marks Cont/ Internal /Mid Assessment	Max.Marks Sem-end Exam
I	1	Ancient Indian History & Culture (From Indus Valley Civil. to 13 Century A.D)	T	5	4	25	75
II	2	Medieval Indian History & Culture (1206 A.D To 1764 A.D)	T	5	4	25	75
III	3	Modern Indian History & Culture (1764-1947 A. D)	T	5	4	25	75
IV	4	History & Culture of Andhra (from 1512 to 1956 AD)	T	5	4	25	75
	5	History Of Modern World (From 15th Cent. AD to 1945 AD)	T	5	4	25	75
V							

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

B.A	Semester: I	Credits: 4
Course: 1	Ancient Indian History & Culture (From Indus Valley Civil. to 13 Century A.D)	Hrs/Wk: 5

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Identify and define various kindsof sources and understand how history books are shaped
- Compare and contrast various stages of progress from IVC to Vedic age and analyze the Jain, Buddhist and Vedic faiths
- Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires
- Analyze the emergence of the Mauryan and Gupta empires during the "classical age" in India
- Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce.
- Critically examine the nature of monarchic rule and develop an comprehensive understandingof cultural evolution during ancient period
- Visualize where places are in relation to one another through map pointing

UNIT -I :

Ancient Indian Civilization (from Circa 3000 BC to 6th BC): Indus Valley Civilization - Salient Features;Vedic Age - Society, Polity, Economy, Culture during early and later Vedic period.

UNIT II:

Ancient Indian History & Culture (6th Century BC to 2rd Century AD): Doctrines and Impact of Jainism and Buddhism; Mauryan Administration, Society, Economy & Culture - Ashoka's Dhamma; Kanishka's Contribution to Indian Culture.

UNIT-III:

History & Culture of South India (2nd Century BC to 8th Century AD): Sangam Literature; Administration, Society, Economy and Culture under Satavahanas; Cultural contribution of Pallavas.

UNIT-IV:

India from 3rd century AD to 8th century AD: Administration, Society, Economy, Religion, Art, Literature and Science & Technology under Guptas – Samudragupta; Cultural contribution of Harsha: Arab Conquest of Sind and its Impact.

UNIT -V:

History and Culture of South India (9th century AD to 13th century AD): Local Self Government of Cholas; Administration, Society, Economy and Culture under Kakatiyas – Rudram Dev

REFERENCES

1. A.L. Basham, The Wonder That Was India
2. D.N.Jha, Ancient India
3. D.D.Kosambi, An Introduction to the Study of Indian History
4. D.P.Chattopadhyay, Science and Society in Ancient India
5. B.N.Mukherjee, The Rise and Fall of the Kushana Empire
6. K.A. NilakanthaShastri, A History of South India
7. R.C.Majumdar, K.K.Dutta&H.C.RoyChowdhuri (ed.), Advanced History of India
8. Kumkum Roy, The Emergence of Monarchy in North India: eighth to fourth centuries BC
9. RomilaThapar (et. al). India: Historical Beginnings and the Concept of the Aryan M.L.K. Murthy, *Pre-and Protohistoric Andhra Pradesh upto 500 B.C.*, New Delhi, 2003
10. K. Sathyanarayana, A Study of the History and Culture of Andhras

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting 10 marks out of 25 marks for this skill-based activity.

Suggested Co-Curricular Activities

- Cultural Clubs
- Assignments
- Student seminars
- Literature surveys and book reviews
- Map pointing
- Individual / Group Field Studies
- Co-operative learning
- Students can be asked to create a calendar charting the dates of key events
- Students should be asked to prepare an inventory of items preserved in the museum and their usage
- Encourage the habit of Numismatics
- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Group Discussions on problems relating to topics covered by syllabus
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

B.A	Semester: II	Credits: 4
Course: 2	Medieval Indian History & Culture (1206 A.D To 1764 A.D)	Hrs/Wk: 5

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Understand the socio, economic and cultural conditions of medieval India
- Describe the advent of Islam in India and study the traces of political and cultural expansion of Turks & Afghans
- Explain the Administration and art and architecture ofVijayanagar Rulers, Mughals and also analyse the rise of the Marathas and the contribution of Shivaji
- Evaluate the establishment of the British rule in India and understand the dangerous consequences disunity at all levels
- Analyze the emergence of composite culture in Indian
- Visualize where places are in relation to one another through map pointing

UNIT-I:

Impact of Turkish Invasions – Balban, AllauddhinKhilji, Md. Bin Tughlaq - Administration, Society, Economy, Religion and Cultural developments under Delhi Sultanate (from 1206 to 1526 AD).

UNIT-II:

Impact of Islam on Indian Society and Culture – Bhakti Movement; Administration, Society, Economy, Religion and Cultural developments under Vijayanagara Rulers.

UNIT-III:

Emergence of Mughal Empire – Babur – Sur Interregnum - Expansion & Consolidation of Mughal Empire – Akbar, Jahangir,Shah Jahan, Aurangazeb.

UNIT-IV:

Administration, Economy, Society and Cultural Developments under the Mughals – Disintegration of Mughal Empire - Rise of Marathas under Shivaji.

UNIT-V:

India under Colonial Hegemony : Beginning of European Settlements - Anglo-French Struggle – Conquest of Bengal by EIC.

REFERENCES:

1. Chandra, S History of Medieval India (800 – 1700)
2. Chattopadyay, B.D The Making of Early Medieval India. (Delhi, 1994)
3. Habib, Irfan, Medieval India: The Study of a Civilization
4. Habibullah, A.B.M, The Foundation of Muslim Rule in India
5. Kumar Sunil, The Emergence of the Sultanate of Delhi.
6. Nizami, K.A. Some Aspects of Religion and Politics in India in the 13th c
7. K.A. NilakantaSastri, A History of South India from Prehistoric Times to the Fall of Vijayanagara.
8. K.A.NilkantaSastri, The Cholas.
9. ShireenMoosvi, The Economy of the Mughal Empire

10. Yazdani, G. (ed) The Early History of the Deccan
11. R.C.Majumdar, The Age of Imperial Kanauj
12. R. Soma Reddy, *Late Medieval Andhra Pradesh, A.D. 1324-1724 A.D.*, New Delhi, 2014
13. HarbansMukhia, The Mughals of India.

Mandatory Co-Curricular Activity:
Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities:

- Book Reading
- Student seminars
- Viva voce interviews
- Quiz Programs
- Individual / Group Field Studies
- Co-operative learning
- Students should be encouraged to prepare a chart on sequence of events
- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Group Discussions on problems relating to topics covered by syllabus
- Examinations (Scheduled and surprise tests)
- Students may be asked to prepare a project on influence of Islam and Hinduism in their respective localities

B.A	Semester: III	Credits: 4
Course: 3	Modern Indian History & Culture (1764-1947 A. D)	Hrs/Wk: 5

Learning Outcomes:
After successful completion of this course, the student will be able to:

- Unearth the true nature of the British rule and its disastrous impact on Indian economy and society
- Gauge the disillusionment of people against the Company's rule even during the early 19th century
- Assess the causes and effects of Reformation movements and also inspire the public to overthrow inequalities of the present day society
- Rise above petty parochial issues after understanding the sacrificial saga of freedom struggle
- Evaluate the undercurrent of communal politics that led to India's partition and identify the enemies of India's integrity and sovereignty
- Visualize where places are in relation to one another through map pointing

UNIT I:
Policies of Expansion –Warren Hastings, Cornwallis - Subsidiary Alliance & Doctrine of Lapse – Causes & Results of 1857 Revolt – Lytton, Rippon, Curzon

UNIT II:
Social, Religious & Self-Respect Movements – Raja Rammohan Roy, DayanandaSaraswathi, Swami Vivekananda, JyotibaPhule, Narayana Guru, Periyar, Dr. B. R. Ambedkar

UNIT III:
Causes for the growth of Nationalism - Freedom Struggle from 1885 to 1920 , Moderate Phase — Militant Phase: Vandemataram Movement - Home Rule Movement

UNIT IV:
Freedom Struggle from 1920 to 1947: Gandhiji's Role in the National Movement – Revolutionary Movement – Subhas Chandra Bose

UNIT V:
Muslim League & the Growth of Communalism – Partition of India – Advent of Freedom - Integration of Princely States into Indian Union – Sardar Vallabhai Patel

REFERENCES BOOKS:

1. Anil Seal, Emergence of Indian Nationalism
2. Banerjee, Sekhar, From Plassey to Partition
3. Bipan Chandra, Rise and Growth of Economic Nationalism in India
4. Chandra, Bipan, et. al., India's Struggle for Independence
5. Bipan Chandra, Modern India
6. Joshi, P.C., Rammohun and the Forces of Modernisation in India
7. R.P.Dutt, India Today

Mandatory Co-Curricular Activity:
Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities:

- Debates
- Student seminars
- Viva voce interviews
- Quiz Programmes
- Photo Album
- Recording local history
- Role Play of freedom struggle events
- Organizing photo exhibition on freedom fighters
- Celebrations of important events / personalities
- Conducting Philately
- Examinations (Scheduled and surprise tests)
- Students may be asked to prepare a project on the differences between Mughal and British administration
- Encourage students to write their autobiography or biography of their inspiring personalities.

B.A	Semester: IV	Credits: 4
Course: 4	History & Culture of Andhra (from 1512 to 1956 AD)	Hrs/Wk: 5

Learning Outcomes:
After successful completion of this course, the student will be able to:

- Interpret social and culture transformation from medieval to modern Andhra
- Relate key historical development during medieval period occurring in costal Andhra and Telangana regions and analyze socio-political and economic changes under Qutbshahi rules
- Understand gradual change, or change in certain aspects of society in Andhra, rather than rapid or fundamental changes.
- Explain how the English East India company became the most dominant power and outline the impact of colonial on different aspects in Andhra.
- Outline the issues related to caste, women, widow remarriage , child marriage, social reforms and the laws and policies of colonial administration towards these issues.
- Take pride in the non-violence struggle for Indian Independence and relate the important of peace in every life.
- Apply the knowledge of the regional history to understand the regional, linguistic and other cultural aspirations of the present day society
- Visualize where places are in relation to one another through map pointing

UNIT I:
Andhra through 16th & 19th Centuries AD: Evolution of Composite culture- the Quatbshahi of Golkonda - Administration, Society &Economy - Literature & architecture: Advent of European and settlements in Andhra - Occupation of Northren Cricars and Ceeded Districts - Early revolts again the British.

UNIT II:
Andhra Under British ruel: Administration - Land revenue settlements -Society - Education - Religion - Impact of Industrial revolution on economy- peasantry &famines - contribution of sir thomas munroe & C.P. Brown - impact of 1857 revolts in Andhra.

UNIT III:
Social Reforms &New literary Movements : Kandukuri Vereeshalingam, Ragupathi Venkatarathnam Naidu, Guruzada AppaRao,Kommarraju Venkata Laxman Rao ; New literacy movements :Rayaprolu SubbaRao, Viswanath Satyanarayana, Gurram Jashua , Boyi Bhimanna, Sri Sri.

UNIT IV:
Freedom Movement in Andhra (1885-1947): Vandemataram Movement– Home Rule Movement in Andhra - Non-Cooperation Movement - AlluriSeetarama Raju &Rampa Revolt (1922-24) - Civil Disobedience Movement – Quit India Movement.

UNIT V:
Movement for separate Andhra State (1953) and AP (1956): Causes – Andhra Maha Sabha –Conflict between Coastal Andhra &Rayalaseema – Sri Bagh Pact – work of various Committees – Martyrdom of PottiSriramulu – Formation of separate Andhra State (1953); Movement for formation of Andhra Pradesh (1956): VisalandhraMahasabha – Role of Communists – States Reorganization Committee – Gentlemen's Agreement – Formation of Andhra Pradesh

REFERENCES BOOKS:

1. H.K.Sherwani, History of the KutubShahi Dynasty
2. K. Sathyanarayana, A Study of the History and Culture of Andhras
3. B. Kesava Narayana, Political and Social Factors in Modern Andhra
4. K.V.Narayana Rao, The Emergence of Andhra Pradesh
5. M. VenkataRangaiah, The Freedom Struggle in Andhra Pradesh
6. P.R.Rao, History of Modern Andhra
7. SarojiniRegani, Highlights of Freedom Movement
8. SarojiniRegani, ఆంధ్రలోస్వాతంత్ర్యోద్యోమచరిద్ధ
9. V. Ramakrishna, Social Reform Movement in Andhra
10. B. Kesava Narayana, Modern Andhra & Hyderabad – 1858 – 1956 A.D., 2016
11. K. Koti Reddy, History of Modern Andhra, Telugu Academy, Hyderabad

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities:

- Students may be asked to identify families/ institutions/ personalities related to freedom struggle and prepare articles
- Assign students to write a note on the historical sites or buildings in their respective areas – thus taking teaching out of the classroom and in to the field, and creating opportunities for students to socialize with their own surroundings
- Student seminars
- Debates
- Viva voce interviews
- Quiz Programmes
- Photo Album
- Recording local history
- Role Play of freedom struggle events
- Organizing photo exhibition on freedom fighters
- Celebrations of important events / personalities
- Conducting Philately
- Examinations (Scheduled and surprise tests)
- Encourage students to write their autobiography or biography of their inspiring personalities

B.A	Semester: IV	Credits: 4
Course: 5	History Of Modern World (From 15th Cent. AD to 1945 AD)	Hrs/Wk: 5

Learning Outcomes:
After successful completion of this course, the student will be able to:

- Demonstrate advanced factual knowledge of world histories, politics, and cultures
- Assess and appraise the developments in art, literature, and society during the Renaissance and utilize content knowledge of the Reformation and Counter Reformation to make predictions about the evolution of Christianity in Europe and abroad.
- Evaluate the causes for the Glorious Revolution and American Revolution and identify the background for the evolution of human rights movement.
- Understand the main events of the French Revolution and its significance in the shift in European culture from Enlightenment to Romanticis.
- Think how Russia's traditional monarchy was replaced with the world's first Communist state.
- Know how the world wars affected people all over the world and the destruction they caused.
- Develop the intellectual curiosity and habits of thought that will lead to life-long learning and continued engagement with European history, literature, culture, languages, and current affairs and acquire advanced international and intercultural competency through coursework in international studies.
- Visualize where places are in relation to one another through map pointing.

UNIT I:
Transformation from Medieval to Modern Era – Chief Characteristics; Glorious Revolution (1688) Origin of Parliament Bill of Rights – Results

UNIT II:
American Revolution (1776); French Revolution (1789) – Causes, Course and Results

UNIT III:
Unification of Italy; Unification of Germany

UNIT IV:
Communist Revolution in Russia; World War I: Causes – Results of the War – Paris Peace Conference; League of Nations

UNIT V:
World War II: Causes, Fascism & Nazism – Results; The United Nations Organization: Structure, Functions and Challenges.

REFERENCES BOOKS:

1. Burke, Peter, The Renaissance
2. C.J.H. Hayes, Modern Europe up to 1870
3. C.D. Hazen, Modern Europe up to 1945
4. Christopher Hill, From Reformation to Industrial Revolution
5. Elton, G.R., Reformation Europe, 1517-1559
6. Ferguson, The Renaissance
7. Gilmore, M.P., The World of Humanism, 1453-1517
8. Hilton, Rodney, Transition from Feudalism to Capitalism
9. J.H.Parry, The Age of Renaissance
10. J.N.L. Baker, History of Geographical Discoveries and Explorations
11. The New Cambridge Economic History of Europe, Vol. I, VII

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

- Watch movies related to the topics in the e-class room
- Organize guest lectures
- Publication of college-level magazine by encouraging students to write articles on contemporary history of Europe
- Viva voce interviews
- Quiz Programmes
- Examinations (Scheduled and surprise tests)

Model Question paper(Semester end)
B.A DEGREE EXAMINATION
Semester- I
Course 1 : Ancient Indian History & Culture from Indus valley civilization to 13th century A.D

Time: 3 Hours Max.Marks: 75

Section-A (25 Marks)

Answer any Five question . Each answer carries 5 marks

(5X5=25 Marks)

1) Vedic Culture వేద సంస్కృతి

2) Jainisam జైనమతం

3) Narasimha Varma –I నరసింహ వర్మ –I

4) Mahabhalipuram

5) Rani Rudhrama Devi రాణి రుద్రమా దేవి

6) Arab invasion అరబ్ దండయాత్ర

7)Kanishka

8) Kautilya

Section –B (50 Marks)

Answer any Five question. Each answer carries 10 marks 5x10=50Marks

9) A) Salient Features of Indus valley civilization?
సింధు నాగరికత యొక్క ముఖ్య లక్షణాలు వివరింపుము?

(OR)

B) Describe the Administrative system of Maurya
మౌర్య పరిపాలనా విధానము వివరించండి?

10) A) Describe the Political History of Andhra Satavahana?
ఆంధ్ర శాతవాహన రాజకీయ చరిత్రను వివరించండి?

(OR)

B) The greatness of Samudra Gupta ?
సముద్రగుప్త ని ఘనకార్యములను వివరింపుము?

11) A) The Greatness of Harshavaradhana ?
హర్షవర్ధన్ ని ఘనకార్యములను వివరింపుము?

(OR)

B) Describe the Administrative system of cholas?
చోళుల పరిపాలనా విధానము వివరించండి?

12) A) Golden age of Guptas

(OR)

B) Impact of Jainism and Buddhiam

13) A) Cultural Heritage in South India from 9th Century to 13th Century

(OR)

B) Political history of Kakatiyas

Model Question paper(Semester end)
B.A DEGREE EXAMINATION
Semester- II
Course 2: Medieval Indian History & Culture
(from 1206 to 1764 A.D)

Time: 3 Hours Max.Marks: 75

Section-A (25 Marks)

Answer any Five question . Each answer carries 5 marks

(5X5=25 Marks)

1) Ghazani Invasion
గజినీ దండయాత్ర

2) Akbar Religious policy1
అక్బర్ మతం విధానం

3) Babur
బాబర్

4) Jahangir
జహంగీర్

5) Aurangazeb Religious policy
ఔరంగజీబు మతం విధానం

6)Waran Hasting
వారన్ హస్టింగ్

7) Sufi Movement

8) Balban

Section –B (50 Marks)

Answer any Five question. Each answer carries 10 marks

(5x10=50Marks)

9. A) Describe the Administrative system of Allauddin Khilji
అల్లాఉద్దిన్ ఖిల్జి పాలనా విధానం

(OR)

B) Greatness of Sri Krishna Devaraya
శ్రీ కృష్ణ దేవరాయల ఘనకార్యములను వివరింపుము?

10. A) Golden Age of Shajahan
షాజహాన్ కాలం స్వర్ణ యుగం

(OR)

B) Impact of Islam on Indian Society or Bhakti Moment
భక్త ఉద్యమమును గూర్చి వ్రాయుము

11. A) The Greatness of Shivaji ?
శివాజీ ఘనకార్యములను వివరింపుము?

(OR)

B) Describe the Carnatic War
కర్నాటక యుద్ధాలు

12. A) Mughal Administration

(OR)

B) Akbar Religious policy

13. A) Shersha Administative policy

(OR)

B) Flassey and Buxar wars

Model Question paper(Semester end)
B.A DEGREE EXAMINATION
Semester- III

Course 3: Modern Indian History & Culture(1764-1947 A.D)

Time: 3 Hours Max.Marks: 75

Section-A (25 Marks)

Answer any Five question. Each answer carries 5 marks 5X5=25 Marks

1) Tippu Sultan
2) Warn Hasting
3) Raja Ramamohan Roy
4) Bakimchanra Cheterji
5) Balaganghadara Tilak
6) Home rule Movement
7) Subhase Chandra Bose
8) Motillal Nehru

Section –B (50 Marks)

Answer any Five question. Each answer carries 10 marks 5x10=50Marks

9) A) What is meant by Subsidiary system? What was its feature?

(OR)

B) Causes and course of the 1857 Revolt

10) A) Social Religious Reform Movement in India

(OR)

B) Dr.B.R. Ambedkar Ideology

11) A) Causes for the growth of Nationalism in India

(OR)

B) Describe the Vandemataram Movement

12) A) Describe the causes and course of the Non Co operation movement

(OR)

B) Describe the Quit India Movement

13) A) Muslim League Politics in Freedom Struggle

(OR)

B) Integration of Princely States into Indian Union

Model Question paper(Semester end)
B.A DEGREE EXAMINATION
Semester- IV
Course 4 : History & Culture OF Andhra (From 1512 TO 1956 A.D)

Time: 3 Hours Max.Marks: 75

Section-A (25 Marks)

Answer any Five question. Each answer carries 5 marks 5X5=25 Marks

1) Narasimha Reddy Revolt
2) Rippon
3) Sir Arthaur Cotton
4) Boyi Bheeimanna
5) Home Rule Movement
6) C.P Brown
7) Rampa Revolt
8) Suravaram Pratap Reddy

Section –B (50 Marks)

Answer any Five question. Each answer carries 10 marks 5x10=50Marks

9) A) Political history of QutubShais of Golkonda

(OR)

B) Occupation of Northern Circars by British Government

10) A) Impact of Industrial Revolution in India

(OR)

B) Causes and course of 1857 revolt in India

11) A) Social Reform Movement in Modern Andhra

(OR)

B) *New Literary movement in Modern Andhra

12) A) Non- Cooperation movement in Andhra

(OR)

B) Viplava Jyothi Alluri Sita Rama Raju

13) A) Martyrdom of Potti Sriramulu

(OR)

B) Movement for formation of Andhra Pradesh

UG PROGRAM (4 Years Honors)

CBCS-2020-21

B.Sc.
Computer Science

Syllabus and Model Question Papers

TABLE OF CONTENTS

S.No	Particulars	Page No.
1	Resolutions of the BOS	3
2	Details of paper titles & Credits	4
	a. Proposed combination subjects:	4
	b. Student eligibility for joining in the course:	4
	c. Faculty eligibility for teaching the course	4
	d. List of Proposed Skill enhancement courses with syllabus,if any	4
	e. Any newly proposed Skill development/Life skill courseswith draft syllabus and required resources	4
	f. Required instruments/software/ computers for the course	5
	g. List of Suitable levels of positions eligible in the Govt/Pvtorganizations	5
	h. List of Govt. organizations / Pvt companies for employment opportunities or internships or projects	6
	Any specific instructions to the teacher /papersetters/Exam-Chief Superintendent	6
3	Program objectives, outcomes, co-curricular and assessmentmethods	7
4	Details of course-wise syllabus for Theory and Lab	9 &11
5	Model Question Papers for Theory and Lab	13
6	Details of Syllabus on Skill Enhancement courses and ModelQuestion Papers for Theory and Lab	33

Note: BOS is to provide final soft copy in PDF and word formats and four copies of hard copies in bounded form to the office of Dean Academic affairs.

1. RESOLUTIONS OF THE BOARD OF STUDIES

Meeting held on: 22.01.2021.Time:10 A.MAt: Adikavi Nannaya University, RJY

Agenda:

1. Adoption of revised-common program structure and revising/updating course - wise syllabi (in the prescribed format) as per the guidelines issued by APSCHE.
2. Adoption of regulations on scheme of examination and marks/grading system of the University UG programs.
3. Preparation of Model question papers in prescribed format.
4. List of equipment/software requirement for each lab/practical
5. Eligibility of student for joining the course
6. Eligibility of faculty for teaching the course
7. List of paper-setters/paper evaluators with phone, email-id in the prescribed format

Members present:

Dr. P.Venkateshwara Rao	Chairman, Dept. of CSE, ANUR.
Sri.D.V.S.Suryanarayana	Member, MVNJS & RVRCollege of A&S, Malkipuram
Mr.D.Dasu	Coordinator, Dept. of CSE,ANUR

Resolutions:

2. Resolved to adopt the revised-common program structure and revising/updating course-wise syllabi (in the prescribed format) as per the guidelines issued by APSCHE.
3. Resolved to adopt the regulations on scheme of examination and marks/gradingsystem of the University UG programs.
4. Resolved to prepare the Model question papers in prescribed format.
5. Resolved to give the list of equipment/software requirement for each lab/practical
6. Resolved the eligibility of student for joining the course
7. Resolved the eligibility of faculty for teaching the course
8. Resolved to give the list of paper-setters/paper evaluators with phone, email-id in the prescribed format

2. DETAILS OF PAPER TITLES & CREDITS

Sem	Course no.	Course Name	Coursee type (T/L/ P)	Hrs/Week (Science:4+2)	Credits (Science:4+1)	Max. Marks Cont/ Internal /Mid Assessment	Max. Marks Sem- end Exam
I	1	Problem Solving in C	T	4	4	25	75
		Problem Solvingin C Lab	L	2	1	-	50
II	2	Data Structuresusing C	T	4	4	25	75
		Data Structuresusing C Lab	L	2	1	-	50
III	3	Database Management System	T	4	4	25	75
		Database Management System Lab	L	2	1	-	50
IV	4	Object Oriented Programmingusing Java	T	4	4	25	75
		Object Oriented Programming using Java Lab	L	2	1	-	50
	5	Operating Systems	T	4	4	25	75
		Operating Systems Lab using C/Java	L	2	1	-	50

Note: *Course type code: T: Theory, L: Lab, P: Problem solving

a. Proposed combination subjects: Computer Applications, Information Technology
b. Student eligibility for joining in the course:
c. Faculty eligibility for teaching the course:
d. List of Proposed Skill enhancement courses with syllabus, if any:
e. Any newly proposed Skill development/Life skill courses with draft syllabus and required resources

f. Required instruments/software/ computers for the course (Lab/Practical course-wiserequired i.e., for a batch of 15 students)

Sem.No.	Lab/Practical Name	Names of Instruments/Software/ computers required with specifications	Brand Name	Qty Required
1	Problem Solving in C Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, C compiler with supportingeditors		15
2	Data Structures usingC Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, C compiler with supportingeditors		15
3	Database Management System Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS,Oracle 8i/9i or SQL Server,MY SQL		15
4	Object Oriented Programming using Java Lab	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, JDK		15
5	Operating SystemsLab using C/Java	Intel desktop PC(80GB HDD,512MB DDR), Windows OS, C compiler with supporting editors, JDK		15

g. List of Suitable levels of positions eligible in the Govt/Pvt organizations Suitable levels of positions for these graduates either in industry/govt organization like, technical assistants/ scientists/school teachers, clearly define them, with reliable justification

S.No	Position	Company/ Govt organization	Remarks	Additional skills required, if any
	Software Programmer	IT Industry		
	Software Developer	IT Industry		
	Software Engineer	IT Industry		
	Program Manager	IT Industry		
	Clerk/PO	Banking Industry		
	IT Specialist	Banking Industry		
	Teacher/Lecturer/Asst.Prof	Education Institutes		
	DB Admin	IT Industry/Medical		

h. List of Govt. organizations / Pvt companies for employment opportunities or internshipsor projects

S.No	Company/ Govt organization	Position type	Level of Position			
	Software Development Industry					
	E-Commerce Industry					
	Medical Industry					
	IT Industry					
	Banking Industry					
	Education Industry					

i. Any specific instructions to the teacher /paper setters/Exam-Chief Superintendent

3. PROGRAM OBJECTIVES, OUTCOMES, CO-CURRICULAR ANDASSESSMENT METHODS

B.Sc.	Computer Science

1. Aim and objectives of UG program in Subject: Computer Science
   The Objectives of this Program describes what students are expected to know and be able to do by the time of graduation. The Computer Science Department's Bachelor of Science program must enable students to attain, by the time of graduation:

   - An ability to identify, formulate and develop solutions to computational challenges.
   - An ability to design, implement and evaluate a computational system to meet desiredneeds within realistic constraints.
   - An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.
   - An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.
   - An ability to communicate and engage effectively with diverse stakeholders.
   - An ability to analyze impacts of computing on individuals, organizations, and society.
   - Recognition of the need for and ability to engage in continuing professional development.
   - An ability to use appropriate techniques, skills, and tools necessary for computing practice.
   - Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.
   - Developing and implementing solution based systems and/or processes that addressissues and/or improve existing systems within in a computing based industry.

2. Learning outcomes of Subject Computer Science:
   - Students will be able to communicate in written and oral forms in such a way as to demonstrate their ability to present information clearly, logically, and critically.
   - Students will be able to apply mathematical and computing theoretical concepts in solution of common computing applications, such as computing the order of an algorithm.
   - Students will be able to complete successfully be able to program small-to-mid- size programs on their own. Sufficient programming skills will require use of good practice, e.g., good variable names, good use of computational units, appropriate commenting strategies.
   - Students will be able to use appropriately system design notations and apply system design engineering process in order to design, plan, and implement software systems
   - In a self-selected area of depth in Computing, students will demonstrate a depth of knowledge appropriate to graduate study and/or lifelong learning in that area. Students should be able to read for understanding materials in that area beyond those assigned in coursework.
   - Students will be prepared for a career in an information technology oriented business or industry, or for graduate study in computer science or other scientific or technical fields.
   - Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems

3. Recommended Skill enhancement courses: (Titles of the courses given below and details of the syllabus for 4 credits (i.e., 2 units for theory and Lab/Practical) for 5 hrs class-cum-lab work.

4. Recommended Co-curricular activities: (Co-curricular Activities should not promote copying from text book or from others' work and shall encourage self/independent and group learning)

   A. Measurable:
   1. Assignments
   2. Student seminars (Individual presentation of papers)
   3. Quiz Programmers
   4. Individual Field Studies/projects
   5. Group discussion
   6. Group/Team Projects

   B General:
   1. Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
   2. Group Discussions
   3. Watching TV discussions and preparing summary points recording personal observations etc., under guidance from the Lecturers
   4. Any similar activities with imaginative thinking.

5. Recommended Continuous Assessment methods:

   Some of the following suggested assessment methodologies could be adopted;
   - The oral and written examinations (Scheduled and surprise tests).
   - Closed-book and open-book tests.
   - Coding exercises.
   - Practical assignments and laboratory reports.
   - Observation of practical skills.
   - Individual and group project reports.
   - Efficient delivery using seminar presentations.
   - Viva voce interviews.
   - Computerized adaptive testing, literature surveys and evaluations.
   - Peers and self-assessment, outputs form individual and collaborative work

.

4. DETAILS OF COURSE-WISE SYLLABUS

B Sc	Semester: I	Credits: 4
Course: 1	PROBLEM SOLVING IN C	Hrs/Wk: 4

Aim and objectives of Course:

- This course aims to provide exposure to problem-solving through programming.
- It introduces the concepts of the C Programming language.

Learning outcomes of Course:

Upon successful completion of the course, a student will be able to:

- Understand the evolution and functionality of a Digital Computer.
- Apply logical skills to analyse a given problem
- Develop an algorithm for solving a given problem.
- Understand 'C' language constructs like Iterative statements, Arrayprocessing, Pointers.
- Apply 'C' language constructs to the algorithms to write a 'C' languageprogram.

3. Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II:

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

UNIT III:

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, character handling and strings.

UNIT IV:

Functions: Introduction – using functions – Function declaration/ prototype – Functiondefinition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V:

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

TEXT BOOKS:

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.

REFERENCES:

1. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson EditionPublications.
2. YashavantKanetkar - Let Us 'C' – BPB Publications.

B Sc	Semester: I	Credits: 1
Course: 1(L)	PROBLEM SOLVING IN C Lab	Hrs/Wk: 2

1. Details of Lab Syllabus: **Problem solving in C LAB**

1. Write a program to check whether the given number is Armstrong or not.
2. Write a program to find the sum of individual digits of a positive integer..
3. Write a program to generate the first n terms of the Fibonacci sequence.
4. Write a program to find both the largest and smallest number in a list of integer values
5. Write a program to demonstrate refection of parameters in swapping of two integervalues using Call by Value & Call by Address
6. Write a program that uses functions to add two matrices.
7. Write a program to calculate factorial of given integer value using recursive functions
8. Write a program for multiplication of two N X N matrices.
9. Write a program to perform various string operations.
10. Write a program to search an element in a given list of values.
11. Write a program to sort a given list of integers in ascending order.
12. Write a program to calculate the salaries of all employees using ***Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary)*** structure.
    a. DA is 30 % of Basic Pay
    b. HRA is 15% of Basic Pay
    c. Deduction is 10% of (Basic Pay + DA)
    d. Gross Salary = Basic Pay + DA+ HRA
    e. Net Salary = Gross Salary – Deduction
13. Write a program to illustrate pointer arithmetic.
14. Write a program to read the data character by character from a file.
15. Write a program to create ***Book (ISBN, Title, Author, Price, Pages, Publisher)*** structure and store book details in a file and perform the following operations
    a. Add book details
    b. Search a book details for a given ISBN and display book details, if available
    c. Update a book details using ISBN
    d. Delete book details for a given ISBN and display list of remaining Books

5. RECOMMENDED CO-CURRICULAR ACTIVITIES:
(Co-curricular activities shall not promote copying from textbook or from otherswork and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabuscontent and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individualactivity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real- time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

6. RECOMMENDED CONTINUOUS ASSESSMENT METHODS:
Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

5. MODEL QUESTION PAPER (Sem-end. Exam)
B.Sc DEGREE EXAMINATIONS
Semester - I
Course : PROBLEM SOLVING IN C

Time: 3Hrs Max.marks:75

Section - A

Answer any 5 question **5X5 = 25M**

1. Explain Block diagram of Computer.
2. Define an Algorithm. What are the key features of an algorithm?
3. Write about go to statement with syntax and example.
4. Dynamic memory allocation.
5. Explain pointers in arrays.
6. How to write data from files with example?
7. Write about enumerated data types.
8. Briefly explain various types of recursions.

Section - B

Answer following question **5X10 = 50M**

9. a) Briefly explain about generations of computers.

(OR)

b) What is a Flowchart? Explain significance with an example.

10. a) Explain basic data types in C?

(OR)

b) Explain about iterative statements available in C.

11. a) What is an Array? Explain different types of arrays with examples.

(OR)

b) What is a string? Explain various string handling functions available in C.

12. a) Define a function. Explain the passing parameter mechanism.

(OR)

b) Explain about Structure with syntax and example in detail.

13. a) Define and use of a pointer and write a ‘C’ program on swapping of two numbersusing pointers.

(OR)

b) Explain file modes in detail.

B Sc	Semester: II	Credits: 4
Course: 2	DATA STRUCTURES USING C	Hrs/Wk: 4

Aim and objectives of Course:

- To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Learning outcomes of Course:

Upon successful completion of the course, a student will be able to:

- Understand available Data Structures for data storage and processing.
- Comprehend Data Structure and their real-time applications - Stack,Queue, Linked List, Trees and Graph
- Choose a suitable Data Structures for an application
- Develop ability to implement different Sorting and Search methods
- Have knowledge onData Structures basic operations like insert, delete,search,update and traversal
- Design and develop programs using various data structures
- Implement the applications of algorithms for sorting, pattern matching etc

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:

Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages.

Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Structured Approach to Programming, Recursion, Tips and Techniques for Writing Programs in 'C'.

UNIT II:

Arrays: Introduction to Linear and Non- Linear Data Structures, One- Dimensional Arrays, Array Operations, Two- Dimensional arrays, Multidimensional Arrays, Pointers and Arrays, an Overview of Pointers.

Linked Lists: Introduction to Lists and Linked Lists, Dynamic Memory Allocation, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays.

UNIT III:

Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks,Stacks and Recursion.

Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues.

UNIT IV:

Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of Binary Trees, Applications of Binary Tree.

UNIT V:

Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, Searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search

Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

TEXT BOOKS:

1. "Data Structures using C", ISRD group Second Edition, TMH
2. "Data Structures through C", Yashavant Kanetkar, BPB Publications

REFERENCES:

1. "Data Structures Using C" Balagurusamy E. TMH

B Sc	Semester: II	Credits: 1
Course: 2(L)	DATA STRUCTURES USING C Lab	Hrs/Wk: 2

Details of Lab Syllabus: **Data Structures Using C Lab**

a. Write a program to read 'N' numbers of elements into an array and also perform thefollowing operation on an array
   i. Add an element at the begging of an array
   ii. Insert an element at given index of array
   iii. Update a element using a values and index
   iv. Delete an existing element

b. Write a program using stacks to convert a given
   i. postfix expression to prefix
   ii. prefix expression to postfix
   iii. infix expression to postfix

c. Write Programs to implement the Stack operations using an array

d. Write Programs to implement the Stack operations using Liked List.

e. Write Programs to implement the Queue operations using an array.

f. Write Programs to implement the Queue operations using Liked List.

g. Write a program for arithmetic expression evaluation.

h. Write a program for Binary Search Tree Traversals

i. Write a program to implement dequeue using a doubly linked list.

j. Write a program to search an item in a given list using the following SearchingAlgorithms
   i. Linear Search
   ii. Binary Search.

k. Write a program for implementation of the following Sorting Algorithms
   i. Bubble Sort
   ii. Insertion Sort
   iii. Quick Sort

l. Write a program for polynomial addition using single linked list

m. Write a program to find out shortest path between given Source Node and DestinationNode in a given graph using Dijkstrar's algorithm.

n. Write a program to implement Depth First Search graph traversals algorithm

o. Write a program to implement Breadth First Search graph traversals algorithm

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from otherswork and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabuscontent and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individualactivity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real- time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

p. The oral and written examinations (Scheduled and surprise tests),

q. Closed-book and open-book tests,

r. Problem-solving exercises,

s. Practical assignments and laboratory reports,

t. Observation of practical skills,

u. Individual and group project reports like "Creating Text Editor in C".

v. Efficient delivery using seminar presentations,

w. Viva voce interviews.

x. Computerized adaptive testing, literature surveys and evaluations,

y. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION PAPER (Sem-end. Exam)
B.Sc DEGREE EXAMINATIONS
Semester - II
Course : DATA STRUCTURES USING C

Time: 3Hrs Max.marks:75

Section - A

Answer any 5 question **5X5 = 25M**

1. Explain about Abstract Data Types.
2. Define linear and non-linear data structures.
3. Explain Atomic Linked List.
4. What are the applications of stacks?
5. What is priority queue?
6. Explain about binary search tree.
7. Define sorting. What are the advantages and disadvantages of merge sort?
8. Briefly explain various representations of Graphics.

Section - B

Answer following question **5X10 = 50M**

9. a) What are primitive and non-primitive data structures with an example?

(OR)

b) Explain different approaches to designing an algorithm.

10. a) Explain different types of arrays.

(OR)

b) What is linked list? Explain different types of linked lists in data structures.

11. a) What is stack? Write ADT. Explain various operations of stack.

(OR)

b) What is a Deque? What are the different techniques used to represent Deque? Explain.

12. a) Write about different tree traveling techniques and write an algorithm for traveling techniques.

(OR)

b) Explain different applications and properties of binary tree.

13. a) Write about various Graph Travelling techniques.

(OR)

b) What is searching? Explain Linear Search Algorithm with example.

B Sc	Semester: III	Credits: 4
Course: 3	DATABASE MANAGEMENTSYSTEM	Hrs/Wk: 4

Aim and objectives of Course:

- The objective of the course is to introduce the design and development ofdatabases with special emphasis on relational databases.

Learning outcomes of Course: Upon successful completion of the course, a student will be able to:

- Gain knowledge of Database and DBMS.
- Understand the fundamental concepts of DBMS with special emphasis onrelational data model.
- Demonstrate an understanding of normalization theory and apply suchknowledge to the normalization of a database
- Model data base using ER Diagrams and design database schemas based on themodel.
- Create a small database using SQL.
- Store, Retrieve data in database.

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach**.**

UNIT II:

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, IS A relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modeling.

UNIT III:

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT IV:

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

TEXT BOOKS:

1. Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill
2. Database Management Systems by Raghu Ramakrishnan, McGrawhill

REFERENCES:

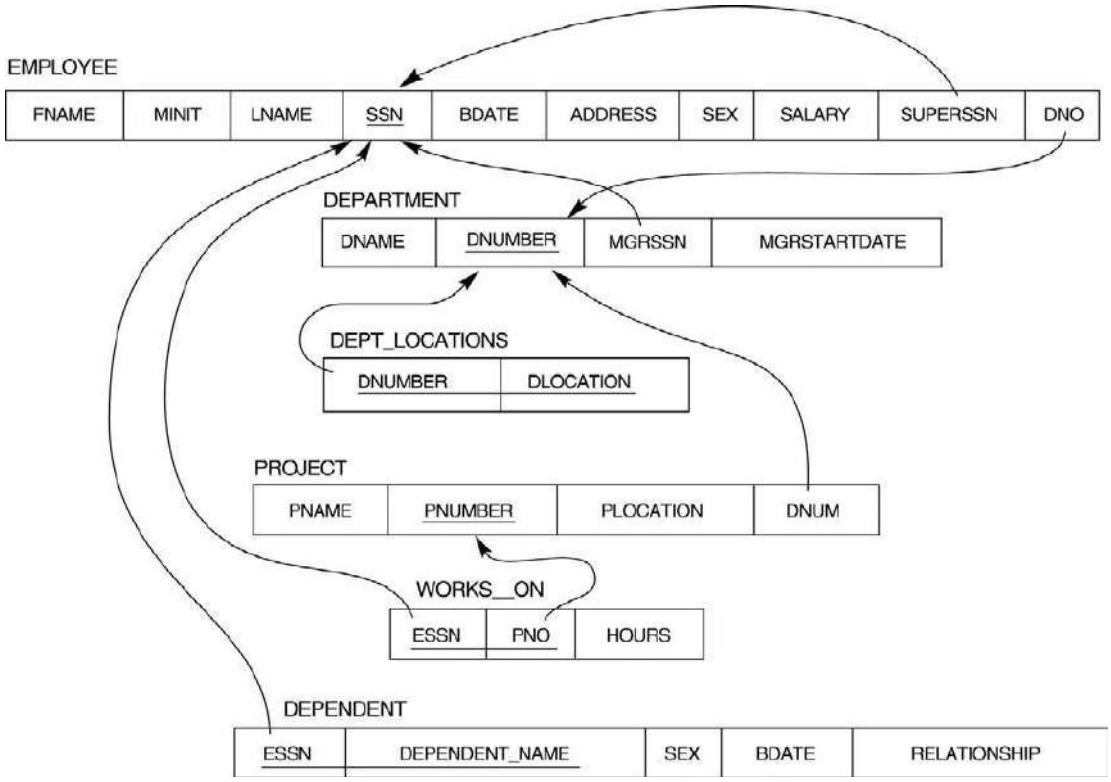
1. Principles of Database Systems by J. D. Ullman
2. Fundamentals of Database Systems by R. Elmasri and S. Navathe
3. SQL: The Ultimate Beginners Guide by Steve Tale.

B Sc	Semester: III	Credits: 1
Course: 3(L)	DATABASE MANAGEMENT SYSTEM LAB	Hrs/Wk: 2

Details of Lab Syllabus: DATABASE MANAGEMENT SYSTEM LAB

1. Draw ER diagram for hospital administration
2. Creation of college database and establish relationships between tables
3. Relational database schema of a company is given in the following figure.

Relational Database Schema - COMPANY



Questions to be performed on above schema

1. Create above tables with relevant ***Primary Key, Foreign Key and other constraints***
2. Populate the tables with data
3. Display all the details of all employees working in the company.
4. Display ***ssn, lname, fname, address*** of employees who work in department no 7.
5. Retrieve the ***Birthdate and Address*** of the employee whose name is 'Franklin T.Wong'
6. Retrieve the name and salary of every employee.
7. Retrieve all distinct salary values
8. Retrieve all employee names whose address is in 'Bellaire'
9. Retrieve all employees who were born during the 1950s
10. Retrieve all employees in department 5 whose salary is between 50,000 and60,000 (inclusive)

11. Retrieve the names of all employees who do not have supervisors
12. Retrieve SSN and department name for all employees
13. Retrieve the name and address of all employees who work for the 'Research'department
14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.
15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
16. Retrieve all combinations of Employee Name and Department Name
17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan' either as a worker or as a manager of the department that controls the project.
18. Increase the salary of all employees working on the 'ProductX' project by 15%. Retrieve employee name and increased salary of these employees.
19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employee first name.
20. Select the names of employees whose salary does not match with salary of any employee in department.
21. Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.
22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings
23. Find the sum of the salaries and number of employees of all employees of the 'Marketing' department, as well as the maximum salary, the minimum salary, and the average salary in this department.
24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.
25. Delete all dependents of employee whose ***ssn is '123456789'***.
26. Perform a query using alter command to drop/add field and a constraint in Employeetable.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

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A. Measurable

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B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

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1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
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5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION PAPER (Sem-end. Exam)
B.Sc DEGREE EXAMINATIONS
Semester - III
Course : DATABASE MANAGEMENT SYSTEM

Time: 3Hrs Max.marks:75

Section - A

Answer any 5 question **5X5 = 25M**

1. Explain disadvantages of file processing system?
2. Explain the concept of entity and entity set with suitable example.
3. Explain about various attribute classification.
4. What are the advantages of Relational algebra? Explain.
5. Explain various types of keys.
6. Explain the selection command with an example.
7. Explain sub queries.
8. Explain structure of PL/SQL.

Section - B

Answer following question **5X10 = 50M**

9. a) With a neat diagram, explain the architecture of a DBMS.

(OR)

b) Explain about Data Models.

10. a) Explain about Specialization and Generalization in EER model.

(OR)

b) What is ER-Modeling? Write advantages and disadvantages of ER-Modelling.

11. a) What is Functional Dependency? Explain difference between 3NF and BCNF?

(OR)

b) What is relational model? Write about key features of relational model.

12. a) What is SQL? Explain different types of commands in SQL.

(OR)

b) What is Nested Queries? How to create them? Discuss it with relevant example.

13. a) Explain steps in creating a PL/SQL Program.

(OR)

b) Explain about Triggers and types of triggers.

B Sc	Semester: IV	Credits: 4
Course: 4	OBJECT ORIENTED PROGRAMMING USING JAVA	Hrs/Wk: 4

Aim and objectives of Course:

- To introduce the fundamental concepts of Object-Oriented programming and todesign & implement object oriented programming concepts in Java.

Learning outcomes of Course:

- Understand the benefits of a well-structured program
- Understand different computer programming paradigms
- Understand underlying principles of Object-Oriented Programming in Java
- Develop problem-solving and programming skills using OOP concepts
- Develop the ability to solve real-world problems through software developmentin high-level programming language like Java

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:

Introduction to Java: Features of Java, The Java virtual Machine, Parts of Java

Naming Conventions and Data Types: Naming Conventions in Java, Data Types in Java, Literals **Operators in Java**: Operators, Priority of Operators. **Control Statements in Java**: if... else Statement, do... while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement. **Input and Output:** Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format(). **Arrays:** Types of Arrays, Three Dimensional Arrays (3D array), array name. length, Command Line Arguments

UNIT II:

Strings: Creating Strings, String Class Methods, String Comparison, Immutability of Strings. **Introduction to OOPs**: Problems in Procedure Oriented Approach, Features of Object- Oriented Programming System (OOPS). **Classes and Objects**: Object Creation, Initializing the Instance Variables, Access Specifiers,Constructors.

Methods in Java: Method Header or Method Prototype, Method Body, Understanding Methods, Static Methods, Static Block, The keyword 'this', Instance Methods, Passing Primitive Data Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Factory Methods. **Inheritance:** Inheritance, The keyword 'super', The Protected Specifier, Types ofInheritance.

UNIT III:

Polymorphism: Polymorphism with Variables, Polymorphism using Methods, Polymorphism with Static Methods, Polymorphism with Private Methods, Polymorphism with Final Methods, final Class. **Type Casting**: Types of Data Types, Casting Primitive Data Types, Casting Referenced DataTypes, The Object Class. **Abstract Classes**: Abstract Method and Abstract Class.

Interfaces: Interface, Multiple Inheritance using Interfaces. **Packages:** Package, Different Types of Packages, The JAR Files, Interfaces in a Package, Creating Sub Package in a Package, Access Specifiers in Java, Creating API Document. **Exception Handling:** Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions, Re – throwing an Exception.

UNIT – IV

Streams: Stream, Creating a File using FileOutputStream, Reading Data from a File uingFileInputStream, Creating a File using FileWriter, Reading a File using FileReader, Zipping and Unzipping Files, Serialization of Objects, Counting Number of Characters in a File, File Copy, File Class

Threads: Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads Acting on Single Object, Thread Class Methods, Deadlock of Threads, Thread Communication, Thread Priorities, thread Group, Daemon Threads, Applications of Threads, Thread Life Cycle.

UNIT V:

Applets: Creating an Applet, Uses of Applets, <APPLET> tag, A Simple Applet, An Applet with Swing Components, Animation in Applets, A Simple Game with an Applet, Applet Parameters.

Java Database Connectivity: Database Servers, Database Clients, JDBC (Java Database Connectivity), Working with Oracle Database, Working with MySQL Database, Stages in a JDBC Program, Registering the Driver, Connecting to a Database, Preparing SQL Statements, Using jdbc–odbc Bridge Driver to Connect to Oracle Database, Retrieving Data from MySQL Database, Retrieving Data from MS Access Database, Stored Procedures and CallableStatements, Types of Result Sets.

TEXT BOOKS:

1. Core Java: An Integrated Approach, Authored by Dr. R. Nageswara Rao &Kogent Learning Solutions Inc.
2. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw- HillCompany.

REFERENCES:

1. John R. Hubbard, Programming with Java, Second Edition, Schaum's outlineSeries, TMH.
2. Deitel&Deitel. Java TM: How to Program, PHI (2007)

B Sc	Semester: IV	Credits: 1
Course: 4(L)	Object Oriented Programming using Java Lab	Hrs/Wk: 2

Details of Lab Syllabus: Object Oriented Programming using Java Lab

1. Write a program to read ***Student Name, Reg.No, Marks[5]*** and calculate ***Total***,***Percentage, Result***. Display all the details of students
2. Write a program to perform the following String Operations
   - **a.** Read a string
   - **b.** Find out whether there is a given substring or not
   - **c.** Compare existing string by another string and display status
   - **d.** Replace existing string character with another character
   - **e.** Count number of works in a string
3. Java program to implements Addition and Multiplication of two N X N matrices.
4. Java program to demonstrate the use of Constructor.
5. Calculate area of the following shapes using method overloading.
   - **a.** Triangle
   - **b.** Rectangle
   - **c.** Circle
   - **d.** Square
6. Implement inheritance between ***Person (Aadhar, Surname, Name, DOB, and Age)*** and ***Student (Admission Number, College, Course, Year)***classes where ReadData(),DisplayData() are overriding methods.
7. Java program for implementing Interfaces
8. Java program on Multiple Inheritance.
9. Java program for to display ***Serial Number from 1 to N*** by creating two Threads
10. Java program to demonstrate the following exception handlings
    - **e.** Divided by Zero
    - **f.** Array Index Out of Bound
    - **g.** File Not Found
    - **h.** Arithmetic Exception
    - **i.** User Defined Exception
11. Create an Applet to display different shapes such as Circle, Oval, Rectangle, Square and Triangle.
12. Write a program to create ***Book (ISBN,Title, Author, Price, Pages, Publisher)***structure and store book details in a file and perform the following operations
    - **j.** Add book details
    - **k.** Search a book details for a given ISBN and display book details, if available
    - **l.** Update a book details using ISBN
    - **m.** Delete book details for a given ISBN and display list of remaining Books

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real- time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION PAPER (Sem-end. Exam)
B.Sc DEGREE EXAMINATIONS
Semester - IV
Course : OBJECT ORIENTED PROGRAMMING USING JAVA

Time: 3Hrs Max.marks:75

Section - A

Answer any 5 question **5X5 = 25M**

1. Explain about JVM.
2. Explain about factory methods.
3. Explain about 'this' keyword with example.
4. Explain about Type casting.
5. Define Abstract class and Abstract method.
6. Explain Zipping and Unzipping files.
7. How to terminate a thread.
8. Explain JDBC.

Section - B

Answer following question **5X10 = 50M**

9. a) Explain Looping statements in JAVA.

(OR)

b) Explain operators and types of operators.

10. a) Explain Inheritance and types of Inheritance.

(OR)

b) Explain constructors and types of constructors with an example.

11. a) Describe Interface? Critically explain and define Accessing Interface variable.

(OR)

b) Explain concept of Exception handling.

12. a) Explain the concept of Creating a file using File Writer using an example program.

(OR)

b) Discuss Thread Life Cycle.

13. a) Define Applet. Explain how to create an Applet.

(OR)

b) Explain the procedure to connect Oracle Database using jdbc-odbc driver.

B Sc	Semester: IV	Credits: 4
Course: 5	OPERATING SYSTEMS	Hrs/Wk: 4

Aim and objectives of Course:

- This course aims to introduce the structure and organization of a file system. It emphasizes various functions of an operating system like memory management, process management, device management, etc.

Learning outcomes of Course:

Upon successful completion of the course, a student will be able to:

- Know Computer system resources and the role of operating system in resource management with algorithms
- Understand Operating System Architectural design and its services.
- Gain knowledge of various types of operating systems including Unix and Android.
- Understand various process management concepts including scheduling, synchronization, and deadlocks.
- Have a basic knowledge about multithreading.
- Comprehend different approaches for memory management.
- Understand and identify potential threats to operating systems and the security features design to guard against them.
- Specify objectives of modern operating systems and describe how operating systems have evolved over time.
- Describe the functions of a contemporary operating system

Detailed Syllabus: (Five units with each unit having 12 hours of class work)

UNIT I:

What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems.

UNIT II:

Processor and User Modes, Kernels, System Calls and System Programs, System View of the Process and Resources, Process Abstraction, Process Hierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Preemptive and Preemptive Scheduling Algorithms.

UNIT III:

Process Management: Deadlock, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery. Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Inter- process Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT IV:

Memory Management: Physical and Virtual Address Space; Memory Allocation Strategies– Fixed and -Variable Partitions, Paging, Segmentation, Virtual Memory.

UNIT V:

File and I/O Management, OSsecurity : Directory Structure, File Operations, File Allocation Methods, Device Management, Pipes, Buffer, Shared Memory, Security Policy Mechanism, Protection, Authentication and Internal Access Authorization Introduction to Android Operating System, Android Development Framework, Android Application Architecture, Android Process Management and File System, Small Application Development using Android Development Framework.

TEXT BOOKS:

1. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and GregGagne (7^{th}Edition) Wiley India Edition.
2. Operating Systems: Internals and Design Principles by Stallings (Pearson)

REFERENCES:

1. Operating Systems by J. Archer Harris (Author), Jyoti Singh (Author) (TMH)
2. Online Resources for UNIT V

B Sc	Semester: IV	Credits: 1
Course: 5(L)	Operating Systems Lab using C/Java	Hrs/Wk: 2

Details of Lab Syllabus: **Operating Systems Lab using C/Java**

1. Write a program to implement Round Robin CPU Scheduling algorithm
2. Simulate SJF CPU Scheduling algorithm
3. Write a program the FCFS CPU Scheduling algorithm
4. Write a program to Priority CPU Scheduling algorithm
5. Simulate Sequential file allocation strategies
6. Simulate Indexed file allocation strategies
7. Simulate Linked file allocation strategies
8. Simulate MVT and MFT memory management techniques
9. Simulate Single level directory File organization techniques
10. Simulate Two level File organization techniques
11. Simulate Hierarchical File organization techniques
12. Write a program for Bankers Algorithm for Dead Lock Avoidance
13. Implement Bankers Algorithm Dead Lock Prevention.
14. Simulate all Page replacement algorithms.
    a) FIFO
    b) LRU
    c) LFU
15. Simulate Paging Techniques of memory management

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from otherswork and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus contentand outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

MODEL QUESTION PAPER (Sem-end. Exam)
B.Sc DEGREE EXAMINATIONS
Semester - IV
Course : OPERATING SYSTEMS

Time: 3Hrs Max.marks:75

Section - A

Answer any 5 question **5X5 = 25M**

1. Write about Resource Abstraction.
2. Write about the process and the process state.
3. Explain threading issues.
4. Explain about process Synchronization.
5. Discuss some necessary and sufficient conditions for deadlock.
6. Explain about Virtual memory.
7. Explain about shared memory.
8. Write about file types.

Section - B

Answer following question **5X10 = 50M**

9. a) Explain various types of Operating Systems.

(OR)

b) What is Operating System? Explain functions of Operating System.

10. a) Explain in detail about Process Scheduling.

(OR)

b) Explain system view of the process and resources.

11. a) Explain about deadlock Detection and recovery.

(OR)

b) Discuss classical process synchronization problems.

12. a) Explain the following

i) Segmentation

ii) Fixed and variable partitions.

(OR)

b) Explain in detail about Demand-paging.

13. a) Explain Authentication and Internal Access Authorization.

(OR)

b) Explain Android Development Framework.

Approved by the Vice-Chancellor dated 27.06.2019

ADIKAVI NANNAYA UNIVERSITY

RAJAMAHENDRAVARAM – 533 296

DEPARTMENT OF COMMERCE AND MANAGEMENT STUDIES

M. Com Syllabus

(With effect from 2019-2020)

ADIKAVI NANNAYA UNIVERSITY: RAJAMAHENDRAVARAM
DEPARTMENT OF COMMERCE AND MANAGEMENT STUDIES
GUIDELINES FOR M. Com Course (2019-20 AB)

1) M. Com course will have 5 subjects in each semester X 4 semester 20 subjects consisting total 2000 marks. 100 marks for Project work and Viva Voce Examination in M. Com course.

2) Out of 100 marks for each subject, 75 marks (75%) marks in each paper are assigned for semester end examination and 25 marks (25%) for Internal/continuous assessment for M. Com course.

3) Every subject of 100 marks will have 5 to 6 periods class load per week, each subject - 4 credits.

4) Every subject will have five units of syllabus.

5) Semester end examination question paper structure consists of two sections, viz:
   Section – A: Short answer questions 8 one or two from each unit of syllabus, with choice to attempt any five out of 8 short answer questions given. Section – B consist of five essay questions, one question from each unit of syllabus with internal choice a) or b).
   The break up 25 marks (25%) for internal examinations will be:
   (a) 15 marks for written examination, two written examinations are to be conducted average of both examinations is considered for awarding final score.
   (b) 5 marks for attendance
   (c) 5 marks for assignment preparation and presentation.

6) There will be project work and viva-voce for M. Com course for 100 marks (50 marks for project work and 50 marks for Viva-vice). The project work is to be done during the summer vacation i.e., after II semester and before III semester. Project work should be submitted by the student to the respective department during 2nd year study and presentation and viva-voce examination is to be held beginning or after IV semester examination. The project presentation and viva-voce examination is conducted by external examiner, for affiliating colleges; University faculty will be external examiner for University Department external examiner from other university is to be invited.

7) There may be comprehensive viva-voce at end of every semester being conducted by all subject teachers together assigning suitable credit from internal marks to be taken. This is intending to prepare and boost the student interview facing skills and comprehension of subject.

Adikavi Nannaya University, Rajamahendravaram
Department of Commerce and Management Studies (M. Com)
(With effect from 2019 – 2020 AB)
ANNEXURE - I

M. COM- COURSE STRUCTURE

				Intrl	Extrl	Total	Periods/ Week	Credits
SEMESTER-I								
1	CP	101	Principles of Management	25	75	100	5	4
2	CP	102	Business Environment	25	75	100	5	4
3	CP	103	Business Economics	25	75	100	5	4
4	CP	104	Business Communication & Soft skills	25	75	100	5	4
5	CP	105	Advanced Management Accounting	25	75	100	5	4
SEMESTER-II								
1	CP	201	Financial Management	25	75	100	5	4
2	CP	202	Human Resource Management	25	75	100	5	4
3	CP	203	Marketing Management	25	75	100	5	4
4	CP	204	Research Methodology & Quantitative Techniques	25	75	100	5	4
5	CP	205	Computer Application in Business	25	75	100	5	4
SEMESTER-III								
1	CP	301	Micro Finance	25	75	100	5	4
2	CP	302	Entrepreneurship Development	25	75	100	5	4
4	AT1	303	Corporate Accounting	25	75	100	5	4
5	AT2	304	Strategic Cost Management	25	75	100	5	4
6	AT3	305	Management Control Systems	25	75	100	5	4
7	FB1	303	Security Analysis and Portfolio Management	25	75	100	5	4
8	FB2	304	International Financial Management	25	75	100	5	4
9	FB3	305	Financial Derivatives	25	75	100	5	4
SEMESTER -IV								
1	CP	401	Financial Markets and Services	25	75	100	5	4
2	CP	402	Auditing and Assurance	25	75	100	5	4
3	AT1	403	Direct Taxes	25	75	100	5	4
4	AT2	404	Indirect Taxes	25	75	100	5	4
5	AT3	405	Tax Planning and Management	25	75	100	5	4
6	FB1	403	Advanced Banking	25	75	100	5	4
7	FB2	404	Rural Banking	25	75	100	5	4
8	FB3	405	Financial Institutions	25	75	100	5	4
			Project Report			50		4
			Comprehensive Viva Voce			50		4
			GRAND TOTAL			**2100**		

M. Com SPECIALIZATIONS

M. COM III SEMESTER

ACCOUNTING & TAXATION SPECIALIZATION

303 AT 1	Corporate Accounting
304 AT 2	Strategic Cost Management
305 AT 3	Management Control Systems

FINANCE & BANKING

303 FB 1	Security Analysis & Portfolio Management
304 FB 2	International Financial Management
305 FB 3	Financial Derivatives

M. COM IV SEMESTER

ACCOUNTING & TAXATION SPECIALIZATION

403 AT 1	Direct Taxes
404 AT 2	Indirect Taxes
405 AT 3	Tax Planning & Management

FINANCE & BANKING

403 FB 1	Advanced Banking
404 FB 2	Rural Banking
405 FB 3	Financial Institutions

ANNEXURE - II

ADIKAVI NANNAYA UNIVERSITY

M. COM - SEMESTER I

CP – 101: PRINCIPLES OF MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objectives:

To familiarize the students with basic management concepts and the process of organization.

Unit – I: Introduction: Concept of Management: Definition, Nature, Purpose, Scope and Significance – Evolution of Management Thought – Approaches to Management – Process of Management – External Environment Functions of Management.

Unit – II: Planning: Types of Plans – Objectives, Management by Objectives, Planning Premises Decision Making: Decision Making Process – Decision Tree Analysis.

Unit – III: Organization: Principles of Organization: Formal and Informal Organization – Span of Control – Delegation of Authority – Centralization and Decentralization – Line and Staff Conflict and Cooperation. Staffing Process: Nature and purpose of staffing – Executive Development Programme (EDPs).

Unit – IV: Directing: Elements of Directing - Motivation – Leadership – Concept, Styles, Theories – Managerial Grid: Likerts Four Systems of Leadership.

Unit – V: Process of Control, Techniques of control, PERT and CPM.

Suggested Books:

1. James A. F. Stoner, R. Edward Freeman and Daniel R. Gilbirth Jr. – Management, Prentice Hall of India.

2. Heinz Weihrich and Harold Koontz, Essentials of Management – Tata McGraw Hill International.

3. Stephen Robbins and Mary Coulter, Management, Prentice Hall of India.

4. Tripathy and Reddy – Principles of Management – Tata McGraw Hill.

Reference Books:

1. R.K. Suri, Organizational Behaviour, Wisdom Publication.

2. A. Pardhasaradhy & R. Satya Raju: Management Text and Cases, Prentice Hall of India.

3. Bajaj: Management Processing and Organization, Excel Publications.

CP – 102: BUSINESS ENVIRONMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To familiarize the students with the business environment prevailing in India and international and understand its implications to business.

Unit-I: Business Environment: Nature and scope - Significance – Cultural, Political, Technological and External Factors Influencing Business Environment – Dimensions of International Business Environment – Challenges.

Unit-II: Structure of Indian Economy: Economic systems- Economic planning with special reference to last three plans, public, private joint and cooperative sectors - Industrial Policy of the Government - Policy Resolutions of 1956, 1991 Industrial Policy and Economic Policy - Subsequent policy Statements.

Unit-III: Indian Companies -Competitiveness, Changes and Challenges, Sustainable Development, Social Responsibilities, Ethics in Business- Competition Act 2002 - Emerging Trends in Indian Business Environment.

Unit – IV: International Trade Theories, Balance of Payments – Concepts, Disequilibrium in BOP Structural, Cyclical and Monetary Disequilibrium, Methods, Trade Barriers and Trade Strategy - Free Trade vs. Protection- Foreign Exchange Market.

Unit – V: Globalization: International Economic Integration, Country Evaluation and Selection, Foreign Market Entry Methods, International Trade Stocks – Objectives; WTO Origin, Objectives, Organization Structure and Functioning – WTO and India.

Suggested Books:

1. K.V.Sivayya and VBM Das: Indian Industrial Economy, Sultan Chand Publishers, Delhi.
2. Suresh Bedi: Business Environment, Excel, New Delhi.
3. Pandey G.N., Environmental Management, Vikas Publishing House.
4. Francis Cherunilam: International Business: Text and Cases, Prentice Hall of India.

Reference Books

1. K. Aswathappa, Essentials of Business environment, Himalaya Publishing House.
2. Pandey G.N. Environmental Management, Vikas Publishing House.
3. Raj Agarwal, Business Environment, Excel publications.
4. Sundaram & Black. International Business Environment Text and cases, PHI.

CP – 103: BUSINESS ECONOMICS

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To enable the students to understand economic concepts and theories and their application in management decision-making.

Unit - I: Introduction: Nature and Scope of Business Economics; Objectives of the Firm – Traditional Theory, Sales and Revenue Maximizing Theories, Managerial Theories and Behavioral Theories; Profit Maximization Vs. Wealth Maximization; Demand Forecasting – Methods of forecasting demand for Existing and New Products, Criteria for Good Forecasting Method.

Unit - II: Production Analysis and Cost Analysis: Production Function – Law of Variable Proportions, Isoquant and Isocost Curves, Least Cost Combination, and Returns to Scale; Economies of Large Scale; Cobb-Douglas Production Function and C.E.S. Production Function; Cost-Output Relationships – Short and Long Run; Cost Oriented Pricing Methods – Full Cost Pricing, Marginal Cost and Differential Cost Pricing.

Unit - III: Market Analysis: Price and Output Determination under Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly and Duopoly.

Unit - IV: Profit Analysis: Meaning of Profit, Limiting Factors of Profit, Criteria for Standard Profit: Theories of Profit; Business Forecasting – Nature and Scope of Forecasting and Different Methods of Business Forecasting and their Advantages and Disadvantages.

Unit - V: Macro Economic Concepts: National Income, Trade Cycles, Inflation, Monetary and Fiscal Policies.

Suggested Books:

1. Mukherjee Sampat: Business and Managerial Economics (In the Global Context), Third Edition, New Central Book Agency (P) Ltd., Kolkatta, 1996.

2. Dwivedi, D.N.: Managerial Economics, Vikas Publishing House Pvt. Ltd., 2003.

3. Varshney, R.L. and Maheswari, K.L.: Managerial Economics, S.Chand & Co, Delhi.

5. Dwivedi, D.N.: Macro Economics; Theory and Policy, Tata McGraw Hill Publishing Company, 2002.

Reference Books:

1. Joel Dean. Managerial Economics, Prentice Hall Ltd., India

2. Varshiney & Maheswari, Managerial Economics, Sultan Chand & Co.,

3. Mehatha P.L. Managerial Economics, Sultan Chand & Co

4. Mote, Paul & Gupta, Managerial Economics, Tat Mc Graw Hill Ltd,

CP – 104: BUSINESS COMMUNICATION & SOFT SKILLS

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To equip the students with the necessary techniques and skills of communication to inform others, inspire them enlist their activity and willing cooperation in the performance of their jobs.

Unit – I: Importance of Communication in Business Organizations – Communication Objectives –Types of Communication - Communication Barriers – Communication Gateways – Developing Listening Skills – Influence of Culture on Communication – Media of Communication: Written, Oral, Visual – Audio Visual Communication- Use of Electronic Media in Business Communication.

Unit – II: Interpersonal Communication – Intrapersonal Communication – Communication Models: Exchange Theory – Johari Window – Transactional Analysis, Communication Styles – Completing Job Application forms with required details – Effective techniques of making and accepting offers – Efficient written offer making and accepting.

Unit – III: Business Correspondence – Meaning, Scope and Significance – Formal, Informal and Semiformal introductions – Understanding and writing letters –Planning effective initial business letters and responses – email writing skills, call taking skills.

Report Writing – Meaning and Significance; Structure of Reports – Formal Reports – Informal Reports.

Unit – IV: Meetings and Oral Presentations – Presentations of oral instructions – effective presentation of written instructions - Basic presentation techniques – Use of information in presenting product features – Oral and written conventions for expressing numerical information in English.

Unit – V: Feedback and Evaluation – Giving feedback to others – Use of questions in self-assessment elicitation – Functional language of agreement and opinion giving – Use of tone and intonation in good/bad feedback – Use of emphatic structures in English- Use of conditionals to discuss future possibilities – Discourage strategies for effective relationship – Team building skills.

Suggested Books:

1. Jerry C. Wofford, Edwin A. Gerloff and Robert C. Cummins, Organisational Communication – The Key stone of Managerial Effectiveness.
2. McGrath, Basic Managerial Skills for All, 5th ed., Prentice Hall of India.
3. Urmila Rai & S.M. Rai, Business Communication, Himalaya Publishers, Mumbai.
4. Meenakshi Raman – Business Communication, Oxford University Press.

Reference Books:

1. Bovee, Thill and Schatzman: Business Communication Today: Pearson Education.
2. Biswajit Das: Business Communication personality Development, Excel Publications.
3. Parag Diwan: Business Communication, Excel Publications.
4. Scot Ober, Contemporary Business Communication, Wiley India, New Delhi.

CP 105: ADVANCED MANAGEMENT ACCOUNTING

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To develop an insight of postulates, principles and techniques of accounting and utilization of financial and accounting information for planning, decision-making and control.

Unit – I: Management Accounting – Nature, Scope and Importance. Management Accounting Vs. Financial Accounting – Role of Management Accountant in an Organization.

Unit – II: Cost Concepts for Decision Making – Meaning of Marginal costing, basic characteristics and assumptions of marginal costing – Marginal costing vs Absorption costing – CVP analysis: meaning, objectives and limitations – Concept of Break Even Point, profit volume graph and profit planning – Break even analysis of multi product firms. (Theory and Problems).

Unit – III: Managerial Applications in Decision Making – Decisions on Product Mix Alterations – Product Additions and Deletion Decisions – Special Order Pricing – Make or Buy Decisions – Key factor analysis – Sell or further processing decisions of Joint and By Products (Theory and Problems).

Unit – IV: Standard Costing – Definition and Meaning – Significance – Applications of Standard Costing – Types of Standards – Advantages of Standards – Standard Costing System – Installation of Standard Costing System – Functions and features of Standards Costing System – Variance Analysis (Material, Labour and Overheads) (Theory and Problems)

Unit – V: Budgeting – Types of Budgets – Financial Budgets – Operating Budgets (Cash Budget and Production Budget) – Fixed and Flexible Budget – Concepts of Performance Budgeting and Zero Based Budgeting. (Theory and Problems)

Suggested Books:

1. I.M. Pandey: Management Accounting, Vikas Publishing House.

2. N.M. Singhvi, Management Accounting: Text and Cases, Prentice Hall of India.

3. T.P. Ghosh: Fundamentals of Management Accounting, Excel Publications.

4. Ravi M. Kishore, Management Accounting, Taxman Publications.

5. Khan and Jain, Management Accounting, Tata McGraw Hill, Delhi.

Reference Books

1. Kulshrestha, N.K., Management Accounting, Tata McGraw Hill, New Delhi.
2. Maheswari, S.N., Principles of Management Accounting, Sultan Chand & Sons, New Delhi.
3. Sahaf M.A., Management Accounting Principles and Practice, Vikas Publishing House, Mumbai.

M.COM. - SEMESTER II
CP – 201: FINANCIAL MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To develop an understanding of the Finance functions and relevant techniques of financial administration.

Unit – I: Introduction: Nature, Scope and Objectives of Financial Management: Finance Function – Profit Goal vs. Wealth Goal Maximization; Techniques of Financial Analysis: Funds Flow Analysis and Ratio Analysis Role of Financial Manager in Modern Environment.

Unit – II: Investment Decision: Techniques of Appraisal; Process of Capital Budgeting – Risk Vs. Return Traditional and Modern Techniques. (including problems).

Unit – III: Financing Decisions: Capital Structure – Determinants; Leverages – Financial, Operating and Combined: Cost of Capital. (including problems)

Unit – IV: Dividend and Retained Earnings: Dividend Policy Decisions; Parameters, Dividend Models; Policies Regarding Retained Earnings.

Unit – V: Working Capital Management: Concept, Need and Determinants of Working Capital - Working Capital Cycle – Working Capital Policy.

Suggested Books:

1. Brearley, Richard and Myers, Steward: Principles of Corporate Finance, New York, McGraw Hill.

2. Prasanna Chandra, Financial Management, Tata McGraw Hill.

3. Khan, M.Y. and Jain, Financial Management, Tata McGraw Hill.

4. Pandey, 1M, Financial Management, Delhi, Vikas Publishing House.

Reference Books

1. Sheeba Kapil, Financial Management, Pearson Education ,New Delhi.
2. Chandrabose, Fundamentals of Financial Management – PHI, New Delhi.
3. Maheswari, S.N. Financial Management, Sultan Chand and Sons, New Delhi.
4. Kulakarni. P.V., Financial Management Himalaya Publishing Houses Co Ltd., Mumbai

CP – 202: HUMAN RESOURCE MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To enable the students to familiarize with the main aspects of Human Resource Management at the organization level and apply the same in management of Human Resources.

Unit – I: Human Resources Management: Concept, Significance and Evolution; Functions of HR Manager, Place of HR Department in Organization.

Unit – II: Human Resource Planning: Significance – Methods and Techniques - Job Analysis – Recruitment and Selection Processes - Induction – Placement – Promotion and Transfers.

Unit – III: Training and Development: Significance – Identification of Training Needs – Employee Training Methods – Executive Development Methods – Evaluation of Training and Development Programmes.

Unit – IV: Wage and Salary Administration: Wage Concepts; Job Evaluation – Methods & Techniques Wage Structure & Policy – Wage Differentials – Wage Payment Methods – Incentives – Fringe Benefits – Performance Appraisal: Scope & Significance – Methods of Appraisal - Limitations of Appraisal.

Unit – V: Industrial Relations: Significance, Causes of Disputes and Settlement - Collective Bargaining - Employee Participation in Management.

Suggested Books:

1. Venkat Ratnam C.S., and Srivastava B.K., Personnel / Human Resource Management, Tata McGraw Hill.

2. N.K. Singh: Human Resources Management, Excel Publications.

3. Jyothi – Human Resource Management, Oxford University Press.

4. Deepak Kumar, B. Human Resource Management, Excel Books.

Reference Books:

1. K. Aswathappa, Human Resource and Personnel Management, TATA McGraw Hill, New Delhi.

2. P. Subba Rao, Human Resource Management, Himalaya Publishers Mumbai.

3. N.K. Singh, Human Resource Management, Excel Publications.

4. Jyothi, Human Resource Management, Oxford University Press.

CP – 203: MARKETING MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To develop an understanding of the concepts, strategies and issues involved in marketing and its Management.

Unit – I: Importance of Marketing – Concepts – Approaches to the Study of Marketing – Marketing Environment.

Unit – II: Consumer Behaviour – Market Segmentation – Market Targeting and Positioning – Marketing Information System and Research.

Unit – III: Marketing Mix: Product Planning – New Product Development – Product Life Cycle – Branding Packaging – Product Mix Management.

Unit – IV: Pricing: Objectives – Methods and Strategies – Distribution – Channel Selection and Management Retail Management.

Unit – V: Promotion: Integrated Marketing Communications: Personal Selling – Advertising – Sales Promotion, Publicity and Public Relations – Direct Marketing: Evaluation of Communication Effort.

Suggested Books:

1. Philip Kotler and Kevin Lane Keller: Marketing Management, Prentice Hall of India / Pearson Education, New Delhi.

2. William J Stanton & Futrell: Fundamentals of Marketing.

3. V. J. Ramaswami and S. Namakumari: Marketing Management, Macmillan Business Books, Delhi.

4. S. Jayachandran: Marketing Management, Text and Cases, Excel Publications.

Reference Books:

1. Rama Swamy & Namakumari, Marketing Management.

2. Dr. R.L.Varshney and Dr. S.L. Gupta, Marketing management Text and cases, Sulthan Chand & Sons.

3. Arun Kumar, N. Meenakshi, Marketing Management, Vikas Publications.

CP – 204: RESEARCH METHODOLOGY & QUANTITATIVE TECHNIQUES

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To equip the students with the basic understanding of research methodology and to provide insight into the application of modern analytical tools and techniques for the purpose of management decision making.

Unit – I: Meaning and Importance of Research – Research Process – Types of Research – Defining Research Problem – Formulation of Hypothesis – Testing of Hypothesis.

Unit – II: Research Design – Exploratory Research – Descriptive Research – Casual Research – Sampling and Sampling Design – Sampling Methods – Simple Random Sampling – Stratified Sampling – Systematic Sampling – Cluster Sampling – Multistage Sampling, Non–Probability Sampling – Convenience Sampling – Judgement Sampling – Quota Sampling.

Unit – III: Data Collection – Primary and Secondary Data – Designing of Questionnaire – Measurement and Scaling – Nominal Scale – Ordinal Scale – Interval Scale – Ratio Scale – Guttman Scale – Likert Scale – Schematic Differential Scale.

Unit – IV: Quantitative Techniques – Meaning – Nature and Scope – Importance in Research.

Unit – V: Measures of Central Tendency – Measures of Dispersion – Simple Correlation and Regression Analysis.

Suggested Books:

1. Mark Saunders, Philip Lewis, Adrian Thornbill, Research Methods for Business Students, Pearson,ND
2. C.R. Kothari, Research Methodology, New Age International.
3. Donald R. Cooper & Pamela S. Schindler, Business Research Methods 8th Edition, Tata McGraw Hill.
4. V P Michael, Research Methodology in Management, Himalaya, Mumbai

Reference Books:

1. Tulasian P.C., and Vishal Pandey, Quantitative Techniques – Theory and Problems Pearson Education New Delhi

2. Gupta and Khanna "Quantitative Techniques for Business Managers" PHI, New Delhi.

3. Kothari C.R. "Quantitative Techniques" Vikas Publications, Mumbai. Vikas Publications, Mumbai.

CP 205 : COMPUTER APPLICATION IN BUSINESS

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: The objective of this course is to provide an insight into basic features of Computer Systems and their Applications in Business Decision Making.

Unit-I: Introduction to Computer Concepts – Elements of computer – Characteristics of a Computer – Classification of Computers – Basic Computer Architecture – Input-output Devices.

Unit-II Software Concepts: Types of software – Software: its nature and qualities — Windows Operating System Functions.

Unit-III: MS Office- Applications of MS Word in Business Correspondence: letters, tables, mail merge, labels.

Computer Networks - Overview of a Network – Communication processors – Communications Media – Types of Network – Network Topologies.

Unit-IV: E-commerce - Meaning, Advantages and Disadvantages of E-Commerce – Conducting Business On-line – Issues in implementing in E-Commerce – Comparison between Traditional Commerce and E-Commerce – Incentives for engaging E-commerce.

Unit-V: Electronic Data Interchange (EDI) – Concept – History of EDI – Phases of EDI – Business Models – Major types of E- Commerce models.

***Suggested Books*:**

1. Sanjay Saxena and Prathpreet Chopra, Computer Applications in Management, Vikas Publishing House, New Delhi.

2. Parameswaran: Computer Application in Business – S Chand, New Delhi.

3. Management Information Systems by Mahadeo Jaiswal, Monika Mittal, Oxford University Press.

Reference Books:

1. Sudalaimuthu & Anthony Raj, Computer Applications in Business, Himalaya, Mumbai

2. David Whitley "E-Commerce – Strategy, Technologies and Application" Tata Mc Graw Hill

3. Parag Diwan and Sunil Sharma "E-Commerce", Excel Books.

M.COM. - SEMESTER III
CP 301 : MICRO FINANCE

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Unit I : Overview of Microfinance: Indian rural financial system, introduction to microfinance, concepts, products (savings, credit, insurance, pension, equity, leasing, hire purchase service. Micro finance in kind, Micro-remittances. Micro-securitization, franchising etc.,). Micro finance models (Generic models viz., SHG, Grameen and Co-operative, variants SHG NABARD model, SIDBI model, SGSY model, Grameen model, NMDFC model.

Unit II : Catalyst Role of NGOs: Educating and formation of SHGs, Linkages with Banks & Markets, Liasoning with Government Dept. Capacity building of SHGs members about value additions, record keeping etc. Praising of Micro Finance Products: Purpose base, Activity base, Economic class base open bidding etc. Pricing saving products, Amount of savings base, Attendance at periodical meeting adding to corpus.

Unit III : Gender Issues in Micro finance and Conflict Resolution in Microfinance – Client impact studies measuring impact of microfinance and microenterprises. Micro enterprise: Characteristics, merits and demerits.

Unit IV: Commercial Microfinance: MFIs: Evaluating MFIs – Social and Performance Metrics, Fund structure, Value added Services. The rise of commercial Microfinance – Transforming NGOs, Structure of Microfinance Industry and Constraints on MFI Growth. The partnership model – MFI as the servicer. Credit Rating of MFIs: Need and basic criteria/indicators for rating MFIs-Credit rating agencies in India and abroad - CAMEL – ACCION rating tools: An introduction.

Unit V: Micro insurance: Products, eligibility, insurance premium and claim administration systems, regulatory guidelines, relevant cases. Micro-securitization. Financial inclusion and micro-finance. Role or NABARD in Microfinance promotion. Field visits and field surveys are recommended.

Suggested Books

1. S. Teki and R.K. Mishra, “Microfinance & Financial Inclusion”, Academic foundation, New Delhi, 2012.

2. Beatiz Armendariz and Jonathan Morduch, “The Economics of Microfinance”, Prentice Hall of India Pvt. Ltd., Delhi, 2005.

3. Joanna Ledgerwood, “Microfinance Handbook”: An Institutional and Financial Perspective, The World Bank, Washington, D.C.

Reference Books:

1. Malcolm Harper, “Practical Microfinance” A Training guide for South Asia, Vistaar Publication, New Delhi, 2003.

2. C.K. Prahalad, “The Market at the Bottom of the Pyramid, 2006”, The Fortune at the Bottom of the Pyramid, Wharton School Publishing.

3. Jorritt De Jong, et al Edited, ‘Microfinance in Access to Government”, Cambridge, 2008.

CP 302 : ENTREPRENEURSHIP DEVELOPMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: The objective of this course is to expose the students to the subject of entrepreneurship and small business management, so as to prepare them to establish and a new enterprise and effectively manage the same.

Unit – I: Entrepreneurship: Importance, Characteristics and Qualities of Entrepreneurship; Entrepreneurial; Role of Entrepreneurship, Ethics and Social Responsibilities.

Unit – II: Role of Government in promotional entrepreneurship - Role of Financial Institutions - Commercial Banks, Entrepreneurial Development Institutes Training Programmes for New and Existing Entrepreneurs.

Unit – III: Start Up's**:** Need for start up's business plan – Business plan process - Advantages of Business Planning - Marketing Plan - Production/Operations Plan - Organization plan - Financial Plan - Final Project Report with Feasibility Study - Preparing a Model Project Report for Starting a New Venture.

Unit – IV: Women Entrepreneurship – Role & Importance, Profile Women Entrepreneur, Problems of Women Entrepreneurs, Women Entrepreneurship Development in India.

Unit – V: Creativity and Entrepreneurship Sources and Methods of Ideas Planning and Development of Programmes - E-Business Ventures - Factors contribution for success and failures of enterprises.

***Suggested Books*:**

1. NVR Naidu and T. Krishna Rao, Management and Entrepreneurship, IK Int Pub House, New Delhi
2. S Anil Kumar, Small Business and Entrepreneurship, IK Int Pub House, New Delhi
3. Balraj Singh, Entrepreneurship Development, Wisdom, Delhi

Reference Books

1. Vasanth Desai, " Small Scale Industries and Entrepreneurship " Himalaya Publishing House, Mumbai.

2. Vasanth Desai, "Dynamics of Entrepreneurial Development and Management" Himalaya Publishing House, Mumbai

3. Poornima Chadrantinath, "Entrepreneurship Development and Small Business Enterprises" Pearson Education, New Delhi.

4. Thomas W. Zimmerer and Horman M. Scarborough, "Essentials of Entrepreneurship and Small Business Management : Pearson Education Inc., Delhi.

303 – AT 1: CORPORATE ACCOUNTING

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: The Objective of this course is to expose students to advanced accounting issues and practices such as maintenance of company accounts, valuation of goodwill and shares, and handling accounting adjustments.

Unit - I: Corporate Financial Accounting: Objectives-Scope - Role of Corporate Accountant-Analysis and Interpretation of Financial Statements - Inflation Accounting.

Unit - II: Valuation of Shares: Need for Valuation of Shares – Factors Effecting Value of Shares – Methods of Valuation – Impact of Earnings on Share Valuation – Role of Fundamental Analysis and Technical Analysis in Share Valuation – Fair Value of a Share – Buy Back of Equity Shares.

Unit - III: Consolidated Financial Statements: Definition of Parent or Holding and its Subsidiary – Need for Consolidated Financial Statement – Preparation of Consolidated Balance Sheet of a Holding Company with one Subsidiary – Consolidation of Profit and Loss Account – Consolidated Statement of Changes in Financial Position.

Unit - IV: Accounting Standards: Objectives – Advantages and Disadvantages of Accounting Standards – Accounting Standards Board (ASB) – International Accounting Standards and Linkage with Indian Accounting Standards –Accounting Standards under US GAAP and Indian GAAP.

Unit - V: Financial Reporting: Concept, Objectives – Purpose of Financial Reporting and Specific Purpose of Report – Segment Reporting – Difficulties in Segment Reporting– Interim Reporting – Problems in Interim Reporting – Improving Financial Reporting – Value Added Statements – Disclosure of Value Added Statements – Economic Value Added – Human Resource Reporting - Environmental Reporting.

Suggested Books:

1. Advanced Accounting – Corporate Accounting Vol. 2 – Ashok Sehgal & Deepak Sehgal, Taxmann Allied Services Pvt Ltd, New Delhi.

2. Advanced Accounting – Volume – 2; R.L. Gupta & Radhaswami S. Chand & Co. Delhi.

3. Financial Accounting: A Managerial Perspective, R. Narayana Swamy, Prentice Hall of India.

4. Financial Accounting for Business Managers: Asish K. Bhattacharyya, Prentice Hall of India.

Reference Books:

1. Financial Accounting – A Managerial Perspective – R. Narayana Swami – Prentice Hall of India, New Delhi.

2. Corporate Accounting – S.N. Maheswari & S.K. Maheswari, Vikas Publishing House, New Delhi.

304 AT 2: STRATEGIC COST MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objectives: The course aims at to impart and inculcate the knowledge of controlling and effective management of cost among the students.

Unit – I: Cost Management – Nature and Scope – Management of Value Chain – Tools of Cost Management. Product Costing Systems – Concepts and Design Issues. (Theory only)

Unit – II: Activity Based Costing System – Meaning and Scope – Limitations of Traditional Costing Allocation Methods – Application of ABC System – Activity – Based Management – Concept and Scope – Target Costing – Benchmark Costing. (Theory & Problems)

Unit – III: Quality Cost Systems – Meaning and Application – Conflict Between Quality and Cost – Trade–off Between Quality and Price – Value Analysis – Life Cycle Costing – Learning Curve Analysis – JIT. (Theory only)

Unit – IV: Cost Estimation – Methods – Costing Engineering – Using Regression Analysis – Evaluating Performance – Kaizen Costing. (Theory & Problems)

Unit – V: Cost Control and Cost Reduction – Managerial and Technical Aspects – Meeting the Cost Reduction Challenges Role of Cost Accountant. (Theory only)

Suggested Books:

1. 'Cost Management' – Strategies for Business Decisions HILTON, MAHER and SELT, Tata McGraw Hill, II ed. 2002.

2. 'Cost Accounting' – Principles and Practice, B. M.Lall Nigam, Prentice Hall of India.

3. Cost Accounting: Theory and Practice, Bhabatosh Benarjee, Prentice Hall of India.

4. 'Principles of Quality Costs' Principles, Implementation and Use Jack Companella, Prentice Hall of India Pvt. Ltd. 2000 (3rd Ed.)

Reference Books:

1.'Cost Accounting' – Jain and Narang.

2.'Cost Accounting' – A Managerial Emphasis' Charless Tn Horngren.

3.'Cost Accounting' – B. Benarjee, World Press, Calcutta.

305 AT 3: MANAGEMENT CONTROL SYSTEMS

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: The course aims at to impart and inculcate the knowledge of controlling and effective strategic systems of management among the students.

Unit -I: Management Control: Objectives- Basic Concepts- The Formula Control Systems, Characteristics of Management Control Systems- Inter Relationship Among Strategic Planning, Management Control and Operational Control – Designing and Introduction of Management Control System – Management Control System and Responsibility Accounting -Informal Management Controls.

Unit -II: Structure of Management Control : Need for Delegation- Responsibility Centers – Expense Centers -Revenue Centers – Profit Centers- Investment Centers, Research and Development Centers – Administrative and Support Centers – Performance of Expense Centers – Revenue Centers – Profit Centers – Investment centers – Organizational Structure of Responsibility Centers – Transfer Pricing – Objectives – Methods – Pricing Corporate Services and Administration of Transfer Prices.

Unit -III: Management Control Process: Strategic Planning – Nature, Analysis of New Programmes – Ongoing Programmes – Strategic Planning Process – Programming and Budgeting – Budget Preparation Process; Performance Evaluation – Performance Evaluation Systems Interactive Control – Analyzing and Reporting – Types of Reports.

Unit -IV: Special Applications: Controls for Differentiated Strategies – Corporate Strategy – Strategic Business Unit Concept – Top Management Style – Management Control in Service Organizations; Professional Services – Financial Services – Healthcare Service Organizations – Management Control in Non-profit Organizations – Characteristics – Measuring Output – Pricing Management Structure.

Unit -V: Management Control in Multinational and Multi project Corporations (MNCs): Objectives, Characteristics, Performance Measurement of Subsidiaries Reporting System – Need for MIS between Parent and Subsidiary Companies – Structure of Multi Project Organization – Characteristics, Project Planning and Control Techniques, Control Indicators in Multi Project Organizations.

Suggested Books:

1. Management control Systems – Robert Anthony and Vijay Govindarajan Tata – McGrawhill publishing Company, New Delhi.
2. Management Control Systems, N. Ghosh, Prentice Hall of India.

Reference Books:

1. Management information and control systems – Dr. Sushila Madan. Taxmann Allied Services Pvt. Ltd., New Delhi.
2. Management Control systems Text and Cases – Subhash Sharma Tata- McGrawhill publishing Company, New Delhi.

303 FB 1: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To enlighten the students with the Concepts and Practical applications of Security Analysis and Portfolio Management

Unit – I: Concept of Investment, Investment Vs Speculation, and Security Investment Vs Non-security Forms of Investment. Investment Process; Sources of Investment Information. Security Markets – Primary and Secondary. (Theory only)

Unit – II: Return and Risk – Meaning and Measurement of Security Returns. Meaning and Types of Security Risks, Systematic Vs Non-systematic Risk. Measurement of total risk. (Theory & Problems)

Unit – III: Fundamental Analysis – Economy, Industry and Company Analysis, Intrinsic Value Approach to Valuation of Bonds and Equity Shares. (Theory & Problems)

Unit – IV: Technical Analysis – Concept and Tools of Techniques Analysis – Technical Analysis Vs Fundamental Analysis. Efficient Market Hypothesis; Concept and Forms of Market Efficiency. (Theory only)

Unit – V: Elements of Portfolio Management, Portfolio Models – Markowitz Model, Sharpe Single Index Model and Capital Asset Pricing Model. Efficient Frontier and Selection of Optimal Portfolio. Performance Evaluation of Portfolios; Sharpe Model, Treynor's Model, Jensen's Model for Portfolio Evaluation. (Theory & Problems)

Suggested Books:

1. Donald E. Fischer, Ronald J. Jordan, Security Analysis and Portfolio Management; Prentice Hall of India.

2. Prasanna Chandra, Investment Analysis and Portfolio Management, Tata McGraw Hill.

3. S. Kevin, Security Analysis and Portfolio Management, Prentice Hall of India.

4. S. Kevin, Portfolio Management, Prentice Hall of India.

Reference Books:

1. J.C. Francis, Investments – Analysis and Management, McGraw Hill Int.
2. Elton, EJ & Grober, MJ, Modern Portfolio Theory and Investment Analysis, John Wiley.

3. Avadhani, VA, SAPM, Himalaya Publishers.

4. Punitavathy Pandian, SAPM, Vikas.

304 FB 2: INTERNATIONAL FINANCIAL MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To enlighten the students with the Concepts and Practical applications of International Financial Management.

Unit I: International Monetary and Financial System: Evolution; Breton Woods Conference and Other Exchange Rate Regimes; European Monetary System, South East Asia Crisis and Subprime crisis-2008.

Unit II: Foreign Exchange Risk: Transaction Exposure; Accounting Exposure and Operating Exposure – Management of Exposures – Internal Techniques, Management of Risk in Foreign Exchange Markets.

Unit III: Features of Different International Markets: Euro Loans, CPs, Floating Rate Instruments, Loan Syndication, Euro Deposits, International Bonds, Euro Bonds and Process of Issue of GDRs and ADRs.

Unit IV: Foreign Investment Decisions: Corporate Strategy and Foreign Direct Investment; Multinational Capital Budgeting; International Acquisition and Valuation, Adjusting for Risk in Foreign Investment.(Theory & Problems)

Unit V: International Accounting and Reporting; Foreign Currency Transactions, Multinational Transfer Pricing and Performance Measurement; Consolidated Financial Reporting.

Suggested Books:

1. S.P.Srinivasan, B.Janakiram, International Financial Management, Wiley India, New Delhi.

2. V.Sharan, International Financial Management, 3rd Edition, Prentice Hall of India.

3. A.K.Seth, International Financial Management, Galgothia Publishing Company.

4. Bhalla, V.K., International Financial Management, 2nd Edition, New Delhi, Anmol, 2001.

Reference Books:

1. Apte.P.G.,: International Financial Management, Tata Mc Graw Hill Publishing House, New Delhi.

2. Siddaiah, T, International Financial Management, Pearson, New Delhi.

3. Eun & Resnick., : International Financial Management, Tata Mc Graw Hill Publishing Company Ltd., New Delhi.

305 FB 3: FINANCIAL DERIVATIVES

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: to enlighten the students with the concepts and practical applications of derivatives in the security markets.

Unit - I: Introduction to Financial Derivatives – Meaning and Need – Growth of Financial Derivatives in India – Derivative Markets – Participants- Functions – Types of Derivatives – Forwards – Futures – Options-Swaps – The Regulatory Framework of Derivatives Trading in India.

Unit - II: Features of Futures –Differences Between Forwards and Futures – Financial Futures – Trading – Currency Futures – Interest Rate Futures – Pricing of Future Contracts- Value at Risk (VaR)-Hedging Strategies – Hedging with Stock Index Futures – Types of Members and Margining System in India – Futures Trading on BSE & NSE.

Unit - III: Options Market – Meaning & Need – Options Vs Futures -Types of Options Contracts – Call Options – Put Options- Trading Strategies Involving Options – Basic Option Positions – Margins – Options on Stock Indices – Option Markets in India on NSE and BSE.

Unit - IV: Option Pricing – Intrinsic Value and Time Value- Pricing at Expiration – Factors Affecting Options pricing- Put-Call Parity Pricing Relationship- Pricing Models - Introduction to Binominal Option Pricing Model – Black Scholes Option Pricing Model.

Unit – V: Swaps – Meaning – Overview – The Structure of Swaps – Interest Rate Swaps – Currency Swaps – Commodity Swaps – Swap Variant – Swap Dealer Role –Equity Swaps – Economic Functions of Swap Transactions - FRAs and Swaps.

Suggested Books*:*

1. Hull C. John, “Options, Futures and Other Derivatives”, Pearson Educations Publishers,

2. David Thomas. W & Dubofsky Miller. Jr., Derivatives valuation and Risk Management, Oxford University, Indian Edition.

3. ND Vohra & BR Baghi, Futures and Options, Tata McGraw-Hill Publishing Company Ltd.

4. Red Head: Financial Derivatives: An Introduction to Futures, Forward, Options” Prentice Hall of India.

Reference Books:

1. David A. Dubofsky, Thomas W. Miller, Jr.: Derivatives: Valuation and Risk Management, Oxford University Press.
2. Sunil K.Parameswaran, “Futures Markets: Theory and Practice” Tata-McGraw-Hill Publishing Company Ltd.
3. D.C. Patwari, Financial Futures and Options, Jaico Publishing House.

4. S.C. Gupta, Financial Derivatives: Theory, Concepts and Problems, Prentice Hall of India.

M.COM. - SEMESTER IV
CP 401: FINANCIAL MARKETS AND SERVICES

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: to enlighten the students with the concepts and practical dynamics of financial markets and financial services.

Unit - I: Structure of Financial System – Role of Financial System in Economic Development- Financial Markets and Financial Instruments- Capital Markets – Money Markets –Primary Market Operations- Role of SEBI – Secondary Market Operations - Regulation – Functions of Stock Exchanges – Listing - Formalities -Financial Services Sector Problems and Reforms.

Unit - II: Financial Services: Concept, Nature and Scope of Financial Services – Regulatory Frame Work of Financial Services – Growth of Financial Services in India – Merchant Banking – Meaning –Types – Responsibilities of Merchant Bankers – Role of Merchant Bankers in Issue Management – Regulation of Merchant Banking in India.

Unit - III: Venture Capital – Growth of Venture Capital in India – Financing Pattern Under Venture Capital – Legal Aspects and Guidelines for Venture Capital. Leasing – Types of Leases – Evaluation of Leasing Option. Vs. Borrowing.

Unit - IV: Credit Rating – Meaning, Functions - Debt Rating System of CRISIL, ICRA and CARE. Factoring, Forfeiting and Bill Discounting –Types of Factoring Arrangements- Factoring in the Indian Context.

Unit - V: Mutual Funds – Concept and Objectives, Functions and types, Working of Public and Private Mutual Funds in India. Debt Securitization - Concept and Application - De-mat Services need and Operations-role of NSDL and CSDL.

Suggested Books:

1. I.M. Bhole, Financial Institutions and market, Tata Mc Graw Hill.

2. V.A. Avadhani, Marketing of Financial Services, Himalayas Publishers, Mumbai.

3. L.M. Bhole, Financial Insitution and Markets, Tata Mc Graw Hill, New Delhi.

Reference Books

1. Gordon, E., and Nataraja, K., Financial Markets and Service, Himalaya Publications, Mumbai.
2. Sharma R.K.and S.K.Management Accounting, Kalyani, Ludhiana.
3. Khan, M.Y., Financial Services, Tata Mc Graw Hill, New Delhi.

CP 402 : AUDITING AND ASSURANCE

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To develop an understanding of the concepts in auditing and of the generally accepted auditing procedures, techniques and skills and acquire the ability to apply the same in audit and attestation engagements.

Unit-I: Basic Principles Governing Audit – Companies Act 2013, provisions – Qualifications and disqualifications of Auditors, Appointment and Removal. – Rights – Duties and Responsibilities of Auditor under Companies Act, 2013.

Unit-II: Auditing and Assurance Standards – Overview - Standards setting process, Guidance Notes - Auditing and Assurance Standards in India and International Standards of Auditing - Role of Auditing and Assurance Standards Board of India.

Unit-III: Internal Control – Internal Audit and Internal check – Appraisal of adequacy of Internal control system. Documentation of Audit work – Importance - Audit Planning, Letter of Engagement; Preparation for Audit, Audit Program, Audit Note Book, Audit Working Papers, Audit Files, Audit Manual and Audit Evidence, Delegation and Supervision of Audit work.

Unit-IV: Other Audits – Cost Audit – Tax Audit – Management Audit – EDP Audit. Special consideration for Audit of Computerized accounts – Issues and challenges. Audit Report and Audit Certificate, Types of Audit Reports, Contents of Audit Report, Special matters to be considered in Auditing Report; Requisites of a good Audit Report as per Companies Act, 2013.

Unit-V: Government Audit – Features – basic principles, local bodies and not for profit organizations, Controller and Auditor General in India – Role – Functions and Responsibilities.

Suggested Books:

1. Kamal Gupta & Ashok Gupta, "Fundamentals of Auditing", McGraw Hill Education, New Delhi, 2004.

2. R.G. Saxena, "Principles and Practice of Auditing", Himalaya Publishing House, New Delhi, 2011.

Reference Books:

1. Spicer and Pegler. "Practical Auditing", Allied Publications, 5th Edition, New Delhi.

2. Ghatalia, Principles of Auditing, PHI, New Delhi.

403 – AT 2: DIRECT TAXES

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: to acquaint the students with the theoretical and practical aspects of direct taxes including wealth taxes.

Unit – I: Income Tax Act 1961: Basic Concepts, Income, Agriculture Income –Residential Status and Incidence of Tax - Incomes Exempt from Tax.

Unit – II: Income from Salaries: Chargeability, Deductions, Perquisites, Computation of Salary Income.

Unit – III: Income from House Property, Chargeability, and Computation of Income.

Unit – IV: Income from Business or Profession - Capital Gains and Income from Other Sources – Computation of Total Income.

Unit – V: Corporate Taxation: Introduction – Objectives - Specific inclusion and exclusions in computing taxable corporate income – corporate taxation in India – MAT- surcharge, Dividend taxation.

Suggested Books*:*

1. Dr. V.K. Singhania & Dr. Kapil Singhania, Direct Taxes Law and Practice, Taxman Publications Pvt. Ltd., New Delhi.

2. Bhagavati Prasad, Direct Taxes Law and Practice, Wishwa Prakashan, New Delhi.

3. Dinkar Pagare, Income Tax and Practice, Sultan Chand and Sons, New Delhi.

Reference Books:

1. Lakhotia R.N: Corporate Tax Planning, Vision Publications , Delhi,

2. Melhotra, MC and Goyal, S.P: Income Tax Law and Accounts including Tax Planning, Sahitya Bhavan Publication, Agra

404 – AT 2: INDIRECT TAXES

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: to acquaint the students with the basics and latest developments in the areas of Indirect taxes.

Unit – I : Direct and Indirect Taxes - Features of indirect taxes - Genesis of GST - Framework of GST - Benefits of GST - Constitutional provisions. - Taxable Event - Supply with consideration - Import of services - Supply without consideration - Activities treated / not treated as Supply of goods or Supply of services - Composite and Mixed Supplies.

Unit – II : Levy and collection of CGST in India - Power of the Government to grant exemption from tax - Goods exempt from tax - Services exempt from tax. - Time and value of supply - Value of supply made to unrelated person with price as the sole consideration – Discount - Inclusions in/exclusions from value of supply - Practical questions on computation of taxable turnover.

Unit – III : Input tax credit – Eligibility conditions for Availing of credit – Practical questions on computing the ITC. Basics of Registration for GST and types of returns under GST.

Unit – IV: Customs Duty - Introduction – Basic Concepts – Scope and Coverage of Customs Duty - Nature of Customs Duty – Classification for Customs – Types of Custom Duties. Exemptions from Customs Duty – Valuation for Customs Duty. Simple problems on calculation of customs duty.

Unit – V: Customs Procedures: Import Procedures - Export Procedures - Baggage, Courier and Post – Warehousing in Customs – Duty Draw Back.

Suggested Books:

1. V.S. Datey, Indirect Taxes Law & Practice, Taxman Publications Pvt. Ltd., New Delhi.
2. V.K.Sareen and Ajay Sharma, Indirect Tax laws, Kalyani Publications, New Delhi.
3. Customs Law Manual and Customs Tariff of India- R K Jain.

Reference Books:

1. Background Material on Model GST Law, Sahitya Bhawan Publications, Hospital Road, Agra
2. The Central Goods and Services Tax Act, 2017, No. 12 of 2017 Published by Authority, Ministry of Law and Justice, New Delhi, the 12th April, 2017.

405 – AT 3 TAX PLANING AND MANAGEMENT

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: to acquaint the students with the theoretical and practical aspects of tax planning and management.

Unit – I: Introduction: Tax Planning and Management – Tax Avoidance, Tax Planning, Tax Evasion – Tax Evasion in India – Measures of the State for Tax Evasion.

Unit – II: Tax Planning for Salaried Persons – Application of Sec 80C in reducing the tax bill of Salaried Persons – Choice between Perquisites and Allowances.

Unit – III: Tax Planning for Firms and HUF- Meaning-Different Schools of HUF-Assessment of HUF and Firms – Partition of a HUF- Scheme of taxation of firms – Allowance and Disallowance for remunerations paid to partners.

Unit – IV: Tax Planning for Companies – Meaning – Types of Companies and Tax rates – Provisions relating to Company assessment – Dividend distribution tax – Deemed Dividend – Minimum alternative tax.

Unit – V: Tax Planning for Small Business – Provision relating to SEZs, Software Parks, SSI – Exemptions on Central Excise on SEZs, Software Parks, SSIs.

Suggested Books:

1. Dr. V.K. Singhnia & Dr. Kapil Singhania, Direct Taxes Law and Practice, Taxman Publications Pvt. Ltd., New Delhi.

2. Bhagavati Prasad, Direct Taxes Law and Practice, Wishwa Prakashan, New Delhi.

Reference Books:

1. Ahuja G.K. and Ravi Gupta: Systematic Approach to Income Tax and Central Sales Tax, Bharat Law House, New Delhi.

2. Singhania, V. K: Direct Taxes Planning and Management, Taxman's Publications Delhi.

3. Melhotra, MC and Goyal, S.P: Income Tax Law and Accounts including tax planning, sahitya Bhavan Publication, Agra.

403 FB 1: ADVANCED BANKING

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: The course aims at to impart and inculcate the knowledge of development and financial sector reforms among the students.

Unit – I: Central Banking Concept – Central Banking Policy in Developed and Developing Economics – Functions – Note Issues – Banker to the Government; Banker to Commercial Banks – Credit Control – Techniques – Structure and Organization of RBI – Role of RBI as Central Bank.

Unit – II: Structure and Organization of Central Bank in USA and UK – Objectives and Techniques of Central Banking Policy in Developed and Less Developed Countries – A Critical Study of Theory and Practice of Central Banking in USA and UK.

Unit – III: Development of Commercial Banking in UK, USA and India – Study of Nature and Structure of Commercial Banking in India and Abroad – Theories of Asset Management of Commercial Banks, Recent Developments in Commercial Banking in USA, UK and India. A Study of Money and Capital Markets in UK, USA and India.

Unit – IV: Economic Stabilization Policy – Objectives of Monetary Policy – Choosing Between Conflicting Objectives – Monetary Policy and Economic Stabilization – Fiscal Policy and Economic Stabilization – Interdependence of Monetary and Fiscal Policies – Debt Management Policy.

Unit –V: Financial Sector Reforms in India – Need for Reforms – Major Reforms After 1991 – Issues and Impact of Financial Reforms.

Suggestive Books*:*

1. Hawtrey "The art of Central Banking " Augustus M.Kelley Publishers, 1970 – New York.
2. Narendra Kumar – Bank Nationalism of India – A Symposium – Lalvani Publishing House, 1969 – Mumbai.
3. Pai Panandikar & N C Mehra – Rural Banking – National Institute of Bank Management – Mumabi.
4. Vasant Desai – Indian Banking – Nature and Problems – Himalaya Publications House – Mumbai.

Reference Books:

1. Benjamin H Bankhurt – Banking Systems – Times of India Press – Mumbai.
2. Mongia J.N. – Banking Around the world – Allied Publishers Pvt Ltd., Mumbai.
3. Bhole, L.M – Financial Institutions and Markets, Tat McGraw – Hill Publishing Company Limited, New Delhi, 2004.
4. Khan, M.Y – Indian Financial System, Tat McGraw Hill Publishing Company Limited, New Delhi, 2004.

404 FB 2: RURAL BANKING

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To expose the students with the functioning of rural credit institutions in India along with the prospects and problems of financial inclusion including priority sector.

Unit I: Rural India: Demographic features-Economic features-Rural poverty-main causes and methods of measuring rural poverty-Rural Infrastructure-Rural Development Policy- Govt. policies and programmes-Economic Reforms and its impact on rural economy.

Unit II: Financing Rural Development: Functions and policies of RBI and NABARD ;Rural Credit Institutions-Role and functions -Role of Information and Communication Technologies in rural banking- Regulation of Rural Financial Services.

Unit III: Financial inclusion: Concept and its role in inclusive growth- Micro credit, micro insurance scheme - Business Facilitators and Business Correspondents in rural financingSHGs/NGOs, linkages with banking, latest guidelines of GOI and RBI.

Unit IV: Priority Sector Financing and Govt. initiatives: Components of priority sector-RBI Guidelines; Government initiatives: Poverty alleviation programmes/Employment programmes/Production oriented programmes-Rural housing and Urban housing schemes under priority sector-Educational loans.

Unit V: Problems and prospects of Rural Banking: Problems of rural branches of commercial banks and regional rural banks-emerging trends in rural banking-financing poor as bankable opportunity.

Suggested Books:

1. Vasantha Desai, Indian Banking-Nature and Problems, Himalaya Publishing House, Mumbai 2. Khan, M.Y., Indian Financial System, Tata McGraw Hill Publishing Company Ltd., New Delhi

3. Pai Panandikar & NC Mehra, Rural Banking, National Institute of Bank Management, Pune

4. Guruswamy, S., Banking in the New Millenium, New Century Publications, New Delhi

Reference Books:

1. Uppal RK, & Rimpi Kaur, Banking Sector Reforms in India, New Century Publications, New Delhi
2. Indian Institute of Banking & Finance, Rural Banking, Mumbai
3. Uppal RK & Pooja, Transformation in Indian Banks-Search for better tomorrow, Sarup Book Publisher Private Ltd., New Delhi

405 FB 3: FINANCIAL INSTITUTIONS

Teaching hours per week	Credits	Internal marks	SEM end/External marks	Max. Marks
5	4	25	75	100

Objective: To acquaint the student with the different types of NBFCs and their contribution to the overall development of the Indian financial system.

Unit – I: Origin – Concept – Definition – Structure – Role of Financial Institutions.

Unit – II: Non-Bank Financial Companies – Introduction – Concept – Definition – Scope and Meaning – Role.

Unit – III: NBFCs – Structure – Growth – Regulation of NBFCs.- An Overview of the Present Position of NBFCs.

Unit – IV: Non – Bank Statutory Financial Organizations – Concept – Structure – Nature, Functions and Role of NBSFOs.

Unit – V: Financial Performance of Non-Banking Statutory Financial Organizations – Investment Pattern – Strengthening of NBFCs. – Reforms in NBSFOs.

Suggested Books:

1. Bhole, L.M – Financial Institutions and Markets, Tat McGraw – Hill Publishing Company Limited, New Delhi, 2005.

2. Khan, M.Y – Indian Financial System, Tat McGraw Hill Publishing Company Limited, New Delhi, 2004.

Reference Books:

1. Indian Banks Association, Indian Banking Year Book 2004, Mumbai, 2005.

2. RBI, Report on Trends and Progress of Banking in India, various issues, Mumbai.

ANNEXURE - III
ADIKAVI NANNAYA UNIVERSITY
M. Com I Semester
MODEL QUESTION PAPER
Paper: CP - 101: PRINCIPLES OF MANAGEMENT
(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

a. Concept of Management
b. Game Theory
c. Line and Staff
d. Managerial Grid
e. Span of Control
f. CPM
g. Decision Tree Analysis
h. Management functions

SECTION – B

Answer the following 5X10=50 M

2 (a) Define Management. Explain the nature, scope and significance of Management.

(OR)

(b) Explain Henry Fayol's Principles of Management.

3 (a) What is meant by Planning? Explain objectives and characteristics of planning.

(OR)

(b) Define Decision Making. Explain its process.

4 (a) Distinguish between formal and informal organizations.

(OR)

(b) What do you mean by Decentralization of Authority? Describe in brief its advantages and limitations.

5 (a) Define Motivation. Compare and contrast of Maslow's Need Priority Theory and Herzberg Two Factors Theory.

(OR)

(b) What is leadership? Discuss Trait Theory and Situational Theory of Leadership.

6 (a) Discuss the essential feature and principles of control.

(OR)

(b) What do you mean by PERT? Explain briefly the uses of PERT.

ADIKAVI NANNAYA UNIVERSITY

M. Com I Semester

MODEL QUESTION PAPER

Paper: CP – 102 : BUSINESS ENVIRONMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Internal Business Environment
(b) Economic Policy
(c) Social Responsibilities
(d) Trade Barriers
(e) International Trade
(f) Globalization
(g) WTO
(h) Public sector

SECTION – B

Answer the following 5X10=50 M

2 (a) Define Business Environment. What factors influencing business environment?

(OR)

(b) Describe the components and significance of business environment.

3 (a) What do you mean by Economic Planning? Explain brief view of Five-Year Plans.

(OR)

(b) Define Industrial Policy. What are the objectives of Industrial Policy 1991.

4 (a) What are the importance and regulations of New Economic Policy?

(OR)

(b) Explain emerging trends in Indian Business environment.

5 (a) Define BOP. Explain its concepts, advantages and limitations of BOP.

(OR)

(b) Explain Foreign Exchange Market Mechanism.

6 (a) Define International Trade Stocks. Explain its objectives and functions.

(OR)

(b) What are the objectives, functions and organization structure of WTO?

ADIKAVI NANNAYA UNIVERSITY

M. Com I Semester

MODEL QUESTION PAPER

Paper: CP – 103 : BUSINESS ECONOMICS

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Nature and Scope of Business Economics
(b) Criteria for Good Forecasting Method
(c) Cobb-Douglas Production Function
(d) CES Production Function
(e) Monopolistic Competition
(f) Criteria for Standard Profit
(g) Trade Cycles
(h) Inflation

SECTION – B

Answer the following 5X10=50 M

2 (a) Write about the alternative objectives of the Firm.

(OR)

(b) Explain the concept of demand forecasting and write about different methods of forecasting.

3 (a) Describe the concept of production function. Explain the production function with the help of Isoquant and Iscocost curves.

(OR)

(b) Examine the cost oriented pricing methods.

4 (a) Explain the price and output determination under Perfect Competition.

(OR)

(b) Write an essay on Monopoly.

5 (a) Describe the different concepts in National Income Measurement.

(OR)

(b) Distinguish between Monetary and Fiscal Policies.

6 (a) Explain the concepts of theories of Profit.

(OR)

(b) Write advantages and disadvantages of Business Forecasting.

ADIKAVI NANNAYA UNIVERSITY

M. Com I Semester

MODEL QUESTION PAPER

Paper: CP – 104 : BUSINESS COMMUNICATION AND SOFTSKILLS

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Audio Visual Communication
(b) Listening Skills
(c) Exchange Theory
(d) Communication Styles
(e) E-mail writing skills
(f) Meetings
(g) Formal Vs Informal Reports
(h) Team building skills

SECTION – B

Answer the following 5X10=50 M

2 (a) Define Communication. Explain its objectives and importance in business organizations.

(OR)

(b) Explain the barriers of communication and gateways to effective communication.

3 (a) Explain the advantages and limitations of Interpersonal Communication.

(OR)

(b) Draft an application for the post of a Lecturer in Commerce.

4 (a) What is meant by Business Correspondence? Explain the scope and significance of Business Correspondence.

(OR)

(b) Define Report Writing. Explain its significance in Business Organizations.

5 (a) Describe the structure of the Effective Presentation.

(OR)

(b) Explain the oral and written conventions for expressing numerical information in English.

6 (a) What do you mean by Feedback and Evaluation? Discuss the importance of feedback and evaluation in Business Communication.

(OR)

(b) Describe the use of tone and intonation in good/bad feedback.

ADIKAVI NANNAYA UNIVERSITY

M. Com I Semester

MODEL QUESTION PAPER

Paper: CP – 105 : ADVANCED MANAGEMENT ACCOUNTING

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Management Accounting
(b) Margin of Safety
(c) Marginal Costing
(d) Special Order
(e) Joint Products
(f) Zero based budgeting
(g) Cash budget
(h) Standard Costing

SECTION – B

Answer the following 5X10=50 M

2 (a) Explain the nature and scope of management accounting.

(OR)

(b) Distinguish between Management Accounting Vs Financial Accounting and Cost Accounting.

3 (a) What is meant by CVP Analysis? Explain its advantages and limitations.

(OR)

(b) Given : Jan. 2015 - Sales Rs. 15000 Profit 800
Feb. 2015 - Sales Rs. 18000 Profit 1400
Calculate : (a) The P/V ratio (b) BEP (c) Profit when sales are Rs. 12000
(d) Sales required to earn a profit of Rs. 2000.

4 (a) Explain the different managerial applications in decision making.

(OR)

(b) XYZ Ltd. is manufacturing three products, A, B and C. All the products use the same raw material which is available to the extent of 61000 kg only. The following information is available from the books and records of the company.

Particulars	**Product A**	**Product B**	**Product C**
Selling price per unit	Rs.100	Rs.140	Rs.90
Variable cost per unit	Rs.75	Rs.110	Rs.65

Raw material requirement per unit [kg]	5	8	6
Market demand - units	5000	3000	4000

Advise the company about the most profitable product mix and also compute the amount of profit resulting from such product mix if the fixed costs are Rs.1, 50,000.

5 (a) Define budgeting. Explain types of budgets.

(OR)

(b) A factory engaged in manufacturing plastic toys is working at 40% capacity and produces 10, 000 toys per month. The present cost break up for one toy is as under.

Material : Rs.10
Labour : Rs.3
Overheads : Rs.5 [60% fixed]

The selling price is Rs.20 per toy. If it is decided to work the factory at 50% capacity, the selling price falls by 3%. At 90% capacity, the selling price falls by 5% accompanied by a similar fall in the price of material. You are required to prepare a statement showing the profits/losses at 40%, 50% and 90% capacity utilizations.

6 (a) Define 'Standard Cost' and 'Standard Costing'. What are the applications of Standard costing.

(OR)

(b) For producing one unit of a product, the materials standard is:
Material X : 6 kg. @ Rs.8 per kg., and
Material Y : 4 kg. @ Rs.10 per kg.
In a week, 1,000 units were produced the actual consumption of materials was:
Material X : 5,900 kg. @ Rs.9 kg., and
Material Y : 4,800 kg. @ Rs.9.50 per kg.
Compute the various variances.

ADIKAVI NANNAYA UNIVERSITY

M. Com II Semester

MODEL QUESTION PAPER

Paper: CP - 201: FINANCIAL MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

i. Risk Vs Return
j. IRR
k. Functions of Financial Management
l. Role of Financial Manager in modern environment
m. Determinants of Capital Structure
n. Gordan's Model
o. Working Capital Cycle
p. Gross Working Capital

SECTION – B

Answer the following 5X10=50 M

2 (a) Explain various financial analysis techniques.

(OR)

(b) XYZ Ltd has made plans for the next year. It is estimated that the company will employ total assets of Rs. 10,00,000, 50% of the assets being financed by borrowed capital at an interest rate of 18% per year. The direct costs for the year are estimated at Rs. 4,50,000 and all other operating expenses are estimated at Rs.90,000. The goods will be sold to customers at 150% if the direct costs. Income tax rate is assumed to be 50%. You are required to calculate (a) Net Profit Margin (b) Return on Assets (c) Assets Turnover, and (4) Return on Owner's equity.

3 (a) What is meant by Capital Budgeting? Describe the process of Capital Budgeting.

(OR)

(b) M/S Ramesh & Co want to replace its old machine with a new automatic machine. Two models X and Y are available at the same cost of Rs. 5 lakhs each. Salvage value of the old machine is Rs.1lakh. The utilities of the existing machine can be used if the company purchases X. Additional costs of utilities to be purchased in that case are Rs. 1 lakh. If the company purchases Y then all the exisiting utilities will have to be replaced with new utilities costing Rs. 2 lakhs. The salvage value of the old utilities will be Rs.0.20 lakhs. The earnings after taxation are expected to be:

	Cash inflows of		
Year	X	Y	PV factors @15%
1	1,00,000	2,00,000	0.87
2	1,50,000	2,10,000	0.76
3	1,80,000	1,80,000	0.66
4	2,00,000	1,70,000	0.57
5	1,70,000	1,40,000	0.50

Salvage value

At the end of 5 year 50,000 60,000

The targeted return on capital is 15%. You are required to

(i) Compute for the two machines separately, net present value, discounted payback period and desirability factor and

(ii) Advise which of the machine is to be selected.

4 (a) What is the relationship between leverage and cost of capital as per the net income approach?

(OR)

(b) The following information cost of capital of Santosh Metals:

Net operating income	Rs. 40,00,000
Interest on Debt	Rs. 10,00,000
Cost of equity	18 percent
Cost of debt	12 percent

(i) What is average cost of capital of Santhosh?

(ii) What happens to the average cost of capital of Santhosh, if it employs Rs. 1Crore of debt to finance a project which earn an operating income of Rs.20,00,000? Assume that the Net Operating Income(NOI) method applies and there is no tax.

5 (a) What is the substance of Modigliani Miller "Dividend Irrelevance" Theorem?

(OR)

(b) Critically examine the policies regarding retained earnings.

6 (a) What are the important characteristics of current assets? What are their implications for Working Capital Management?

(OR)

(b) Discuss how the cash requirement for Working Capital is estimated.

ADIKAVI NANNAYA UNIVERSITY

M. Com II Semester

MODEL QUESTION PAPER

Paper: CP – 202: HUMAN RESOURCE MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(i) Management Development
(j) Promotion
(k) Counseling
(l) Minimum wage
(m) Fringe benefits
(n) Collective Bargaining
(o) Induction
(p) Social security

SECTION – B

Answer the following 5X10=50 M

2 (a) Define Human Resource Management. Explain the functions of HRM.

(OR)

(b) Explain the qualities and qualifications necessary for a HR manager and also discuss the role of HR Manager in an organization.

3 (a) What is Human Resource Planning? Explain the importance of HRP in a business organization.

(OR)

(b) Explain the process of recruitment and selection.

4 (a) What is meant by Training and Development? Explain its methods.

(OR)

(b) Explain the evaluation of training and development programmes.

5 (a) Discuss the methods and techniques of job evaluation.

(OR)

(b) What is performance appraisal? Explain the methods of performance appraisal.

6 (a) Define Industrial relations. Explain the functions of good industrial relations.

(OR)

(b) Discuss the employee participation in management.

ADIKAVI NANNAYA UNIVERSITY

M. Com II Semester

MODEL QUESTION PAPER

Paper: CP – 203: MARKETING MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(i) Marketing Mix
(j) Online Marketing
(k) Product Development
(l) Idea Generation
(m) Publicity Vs Advertising
(n) Personal Selling
(o) Supply Chain Process
(p) Promotion Mix

SECTION – B

Answer the following 5X10=50 M

2 (a) Explain various approaches to the study of Marketing?

(OR)

(b) What do you mean by marketing environment? Explain its importance in the process of marketing development.

3 (a) What is market segmentation? Explain various bases by which marketers can segment international markets.

(OR)

(b) Define consumer behaviour. What factors influencing consumer behavior?

4 (a) Explain the major steps in the new product development process. Explain the problems involved in it.

(OR)

(b) Describe various stages in the product life cycle? Suggest measures and strategies at various stages.

5 (a) Explain the basic distinction between skimming and penetration pricing strategies while launching a new product which type of pricing is preferable? Why?.

(OR)

(b) Explain a logical process for channel relation. Discuss various types of conflicts that may arise in the channel of distribution.

6 (a) Define sales promotion. Explain its objectives.

(OR)

(b) What is various major forms of direct marketing. Explain the benefits to buyers and sellers.

ADIKAVI NANNAYA UNIVERSITY

M. Com II Semester

MODEL QUESTION PAPER

Paper: CP -204: RESEARCH METHODOLOGY AND QUANTITATIVE TECHNIQUES

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(i) Research Process
(j) Null Hypothesis
(k) Descriptive Research
(l) Quota Sampling
(m) Schedules
(n) Ratio Scale
(o) Regression Analysis
(p) Arithmetic Mean

SECTION – B

Answer the following 5X10=50 M

2 (a) What is meant by research? Explain the various types of research.

(OR)

(b) What do mean by Hypothesis? State the general procedure for testing the Hypothesis.

3 (a) Define Sampling, Sampling Design and explain various methods of sampling.

(OR)

(b) Briefly explain the research design.

4 (a) Writes short note on

(q) Likert Scale (ii) Ordinal Scale (iii) Schematic Differential Scale

(OR)

(b) Define data collection. Explain different methods of data collection and distinguish between primary and secondary data.

5 (a) Discuss the advantages and limitations of Quantitative techniques.

(OR)

(b) Briefly explain importance of research in Quantitative Techniques.

6 (a) Explain clearly the meaning and significance of multiple regression and correlation..

(OR)

(b) Calculate the Mean, Median and Mode from the following information:

10-20	20-30	30-40	40-50	50-60	60-70	70-80
6	13	20	25	20	11	5

ADIKAVI NANNAYA UNIVERSITY

M. Com II Semester

MODEL QUESTION PAPER

Paper: CP -205:COMPUTER APPLICATION IN BUSINESS

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(i) Computer Architecture
(j) Elements of Computers
(k) Software
(l) Computer Network
(m) Traditional Commerce vs E-commerce
(n) Network Topology
(o) Business Model
(p) Mail Merge

SECTION – B

Answer the following 5X10=50 M

2 (a) Define computer. Explain merits and demerits of a computer.

(OR)

(b) Explain different Input and Output Devices.

3 (a) Explain the concept of software and various types of software.

(OR)

(b) What are the basic functions of an operating system? Distinguish between Windows Operating System and MS DOS.

4 (a) Explain the various components involved in the preparation of document using MS-Word.

(OR)

(b) Define a computer network. Discuss the different types of networks.

5 (a) What is E-Commerce? Explain the advantages and disadvantages of E-commerce.

(OR)

(b) Discuss the issues in implementing E-Commerce.

6 (a) What is EDI? Explain the different phases of EDI.

(OR)

(b) Briefly explain the E-commerce Models.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: CP - 301: MICRO FINANCE

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Hire purchase
(b) Franchising
(c) Capacity building
(d) Pricing saving products
(e) Microenterprises
(f) MFI
(g) Micro insurance
(h) Micro finance

SECTION – B

Answer the following 5X10=50 M

2 (a) Explain the concept and various models of micro finance..

(OR)

(b) Discuss the Indian rural financial system

3 (a) Explain the catalyst role of NGOs in Micro finance.

(OR)

(b) Explain the pricing of microfinance products.

4 (a) Discuss the gender issues in micro finance and conflict resolution in micro finance.

(OR)

(b) What are the characteristics, merits and demerits of micro enterprise?

5 (a) Explain the structure of micro finance industry and constraints on MFI growth.

(OR)

(b) Discuss the credit rating agencies in India and Abroad.

6 (a) Explain the role of NABARD in Micro finance promotion.

(OR)

(b) Elaborate the micro insurance products and claim administration system.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: CP – 302 : ENTREPRENEURSHIP DEVELOPMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following **5X5=25 M**

(a) Entrepreneur
(b) Feasibility study
(c) EDP
(d) Financial Plan
(e) Women Entrepreneurship
(f) DIC
(g) E-Business
(h) Idea generation

SECTION – B

Answer the following **5X10=50 M**

2 (a) Explain the characteristics and importance of Entrepreneurship.

(OR)

(b) Describe the role and functions of Entrepreneurs.

3 (a) Briefly explain role of financial institutions.

(OR)

(b) Explain different training programmes for new and existing entrepreneurs by Entrepreneurial Development Institutes.

4 (a) Describe the preparing a model project report for starting a new venture.

(OR)

(b) Explain the need for start up's business plan and process of business plan.

5 (a) Explain the role and importance of Women Entrepreneurship.

(OR)

(b) Discuss the problems of Women Entrepreneurs and suggest measures to overcome the problems.

6 (a) What are the methods and sources of Idea Planning?

(OR)

(b) Explain the factors contribution for success and failure of enterprises in India.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: AT -1: CORPORATE ACCOUNTING

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Financial Statement Analysis
(b) Corporate Accounting
(c) Inflation accounting
(d) Valuation of Shares
(e) Subsidiary company
(f) Accounting standards
(g) Financial reporting
(h) Value added statements

SECTION – B

Answer the following 5X10=50 M

2 (a) What are the objectives of corporate financial accounting?

(OR)

(b) Explain the advantages and limitations of financial statement analysis.

3 (a) Explain the methods of valuation of shares.

(OR)

(b) From the following Balance Sheet of Sweetex Ltd. you are asked to-ascertain the value of each Equity Share of the company:

Liabilities	*Rs.*	*Assets*	*Rs.*
20,000 Equity Shares of Rs. 10 each, fully paid	2,00,000	Goodwill	30,000
		Land and Building	1,00,000
1,000, 6% Preference Shares of Rs. 100 each, fully paid	1,00,000	Plant and Machinery	1,20,000
		Investments (at cost)	60,000
Reserves	60,000	Stock	50,000
Sundry Creditors	40,000	Debtors	40,000
Provision for Taxation	20,000	Cash at Bank	24,000
Other Liabilities	10,000	Preliminary Expenses	6,000
	4,30,000		4,30,000

For the purpose of valuing the shares of the company, the assets were revalued as: Goodwill Rs. 50,000; Land and Building at cost plus 50%, Plant and Machinery Rs. 1, 00,000; Investments at book values; Stock Rs. 80,000 and Debtors at book value, less 10%.

4 (a) Explain the advantages and limitations of Holding company.

(OR)

(b) The following is the Balance sheet of S Ltd. as on 31st March, 2015.

Liabilities	**Amount (Rs.)**	**Assets**	**Amount (Rs.)**
Share capital Equity shares of Rs. 10 each	2,70,000	Fixed Assets	2,90,000
General Reserve and Profit & Loss Account	3,60,000	Investment	2,75,000
Current Liabilities	85,000	Current Assets	1,30,000
		Preliminary Expenses	20,000
	7,15,000		**7,15,000**

H Ltd. acquired 25,000 shares in S Ltd. on 31st March, 2010 at a cost of Rs. 2,75,000. Fixed assets were revalued at Rs. 3,28,000. Find minority interest. Prepare consolidated balance sheet.

5 (a) Explain the objectives, advantages and limitations of accounting standards.

(OR)

(b) Explain applicability of Indian Accounting Standards to companies.

6 (a) What are the objectives and purpose of financial reporting?

(OR)

(b) Explain the difficulties in Segment Reporting and Interm Reporting.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: AT-2 STRATEGIC COST MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following **5X5=25 M**

(a) Strategic Cost Management

(b) Benchmark costing

(c) Kaizen costing

(d) Variance analysis

(e) Cost control

(f) Life cycle costing

(g) Target costing

(h) Activity based management

SECTION – B

Answer the following **5X10=50 M**

2 (a) Explain the nature and scope of strategic cost management.

(OR)

(b) Explain the design issues in product costing.

3 (a) Distinguished between traditional costing and activity based costing.

(OR)

(b) A company manufactures two products, X and Y. The product X is a low volume and its sales are only Rs.5,000 p.a. Product Y is high volume and labor intensive, its sales are 25,000 units pa. Product X takes 6 labor hours to make one unit but Y requires 8 hours per unit. Details of costs for materials and labor for each product are as follows.

Particulars	**Product X**	**Product Y**
Direct Materials – Rs.	200	100
Direct Labor -@ Rs.10 per hour	60	80
Total	260	180

The company works 1,00,000 direct labor hours p.a. Total manufacturing overhead costs are Rs.17,50,000 p.a.

You are required to compute per unit cost of each product using,

I. Direct labor hour rate method for absorption of overhead costs and

II. Activity Based Costing technique for absorption of overhead costs

4 (a) Explain the meaning and application of quality cost system.

(OR)

(b) Elaborate learning curve analysis.

5 (a) What is meant by costing engineering? Explain the methods of cost estimation.

(OR)

(b) The standard material cost to produce a ton of chemical X is given below:

300 kg of material A @ Rs.10 per kg
400 kg of material B @ Rs.5 per kg
500 kg of material C @ Rs.6 per kg

During a particular period, 100 tons of mixture X was produced from the usage of

35 tons of material A @ Rs.9, 000 per ton
42 tons of material B @ Rs.6, 000 per ton
53 tons of material C @ Rs.7, 000 per ton

Calculate material cost, price, and usage and mix variances.

6 (a) Explain the role and challenges of Cost Accountant.

(OR)

(b) Distinguish between cost control and cost reduction.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: AT-3 MANAGEMENT CONTROL SYSTEMS

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following **5X5=25 M**

(a) Operational Control

(b) Responsibility Accounting

(c) Profit Centers

(d) Responsibility Centers

(e) Strategic Planning

(f) Corporate Strategy

(g) Reporting System

(h) Financial Services

SECTION – B

Answer the following **5X10=50 M**

2 (a) What is meant by Management Control System? Explain its characteristics and objectives of Management Control System.

(OR)

(b) Distinguish between Management Control and Operational Control.

3 (a) Briefly explain the structure of Management Control.

(OR)

(b) Explain the objectives and methods of transfer pricing.

4 (a) Briefly explain the strategic planning process.

(OR)

(b) What is meant by reporting? Explain various types of reports.

5 (a) Explain the management control in service organizations.

(OR)

(b) Discuss the characteristics and objectives of management control in non-profit organizations.

6 (a) Explain the structure of multi project organizations.

(OR)

(b) What are the basic objectives and significance of Multi Project Corporations?

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: 303 FB-1 : SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following **5X5=25 M**

(a) Speculation
(b) Secondary Market
(c) Systematic Risk
(d) Industry Analysis
(e) Equity Shares
(f) Fundamental Analysis
(g) Performance Evaluation
(h) CAPM

SECTION – B

Answer the following **5X10=50 M**

2 (a) Define investment. What are the characteristics of investment?

(OR)

(b) Describe the characteristics of the security market.

3 (a) Define risk and distinguish between systematic and unsystematic risk.

(OR)

(b) A stock costing Rs. 100 pays no dividends. The possible prices that the stock might sell for at year-end and the probability of each are:

Year-end Price (Rs.)	Probability
90	0.1
95	0.2
100	0.4
110	0.2
115	0.1

a. What is the expected return on the stock?
b. What is the standard deviation of the expected return?

4 (a) Why industry analysis is important in security valuation? Bring out the important considerations in industry analysis.

(OR)

(b) What are the significant factors to be considered for Company Analysis?

5 (a) Technical analysts believe that one can use past price changes to predict future price changes. How do they justify this belief?

(OR)

(b) What sequence of events might bring about an 'efficient market'?

6 (a) Use the Sharpe Index Model to select the best combination of securities for a portfolio. The risk free rate is 5% and market standard deviation is 20%.

Security	**S1**	**S2**	**S3**	**S4**	**S5**
Risk (Beta)	1.5	1.2	1.3	1.4	0.85
Return	12%	15%	10%	16%	8%
Error	20%	15%	12%	24%	22%

(OR)

(b) State the modern approach in the construction of the portfolio.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: 304 FB-2 : INTERNATIONAL FINANCIAL MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following **5X5=25 M**

(a) Foreign Exchange Risk
(b) European Monetary System
(c) Euro Bonds
(d) Corporate Strategy
(e) Financial Reporting
(f) Floating Rate Instruments
(g) Foreign Exchange Markets
(h) International Acquisition

SECTION – B

Answer the following **5X10=50 M**

2 (a) Discuss the nature and scope of international financial management by a multinational firm.

(OR)

(b) Describe in detail the evolution of international monetary and financial systems?

3 (a) Explain various types of Foreign Exchange Exposure.

(OR)

(b) Discuss the foreign exchange risk management strategies.

4 (a) Explain the process of issuing ADR and Distinguish between GDR and ADR.

(OR)

(b) Describe in detail the features of different international markets.

5 (a) Discuss the diversification principle in the context of foreign investment vis-à-vis domestic investment?

(OR)

(b) What is the intuition behind the NPV capital budgeting framework?

6 (a) Briefly explain the international accounting and reporting.

(OR)

(b) Elaborate the multinational transfer pricing and performance measurement.

ADIKAVI NANNAYA UNIVERSITY

M. Com III Semester

MODEL QUESTION PAPER

Paper: 305 FB-3 : FINANCIAL DERIVATIVES

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following **5X5=25 M**

(a) Financial Futures
(b) Put options
(c) Black Scholes Option Pricing Model
(d) Swap Variant
(e) Option pricing
(f) Pricing models
(g) Hedging strategies
(h) FRAs

SECTION – B

Answer the following **5X10=50 M**

2 (a) Define forward contract and explains its characteristics.

(OR)

(b) What is meant by Financial Derivatives? Explain the growth of Financial Derivatives in India.

3 (a) What is future contract? Distinguish between forwards and future contracts.

(OR)

(b) Briefly explain the futures trading on NSE and BSE.

4 (a) What is options market? Explain the various types of options.

(OR)

(b) Discuss the option markets in India on NSE and BSE.

5 (a) What factors affecting options pricing.

(OR)

(b) Briefly explain the pricing models.

6 (a) What is a swap? Explain the structure of Swaps.

(OR)

(b) Briefly explain the economic functions of swap transactions.

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: CP - 401: FINANCIAL MARKETS AND SERVICES

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

a. Capital Market
b. Concept of Financial Services
c. Merchant Banker
d. Bill Discounting
e. CRISIL
f. Factoring
g. NSDL
h. De-mat Services

SECTION – B

Answer the following 5X10=50 M

2 (a) What is meant by financial system? Examine its role in economic development.

(OR)

(b) What is meant by Stock Exchange? Explain the functions of Stock Exchange.

3 (a) Briefly write about regulatory framework of financial service in India.

(OR)

(b) Explain the responsibilities of merchant bankers in India.

4 (a) What is venture capital? Evaluate the growth of venture capital in India.

(OR)

(b) What do you mean by leasing? Explain various types of leases.

5 (a) What are the types of Factoring Arrangements?

(OR)

(b) Outline the functions of Credit Rating.

6 (a) Define mutual fund. Explain the objectives and functions of mutual funds.

(OR)

(b) Explain the role and functions of CSDL.

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: CP - 402: AUDING AND ASSURANCE

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

a. Qualifications of Auditor
b. International standards of Auditing
c. Internal Control
d. Cost Audit
e. Government Audit
f. EDP Audit
g. Audit Evidence
h. Companies Act, 2013

SECTION – B

Answer the following 5X10=50 M

2 (a) What are the rights and duties of Auditor under Companies Act, 2013.

(OR)

(b) Explain the basic principles of governing audit.

3 (a) Describe the auditing and assurance standards in India.

(OR)

(b) Briefly explain the role of auditing and assurance standards board of India.

4 (a) Explain appraisal of adequacy of Internal control system.

(OR)

(b) Distinguish between internal audit and internal check.

5 (a) Briefly explain various types of audit reports.

(OR)

(b) What are the requisites of a good audit report as per Companies Act, 2013?

6 (a) What are the basic principles and features of government audit?

(OR)

(b) Explain the Role and Functions of Controller and Auditor General in India.

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: 403- AT 1: DIRECT TAXES

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Assessee
(b) Agriculture Income
(c) Perquisites
(d) Gratuity
(e) Self-occupied Property
(f) Capital Asset
(g) Interest on Securities
(h) Deemed Assets

SECTION – B

Answer the following 5X10=50 M

2 (a) What are the different categories of assesses according to their residential status? How is this status determined?

OR

(b) Enumerate any ten items which are exempt from charge of Income-tax.

3 (a) Balu is employed by P Ltd in Pune. During the previous year, he gets the following emoluments: Basic salary: Rs. 1,86,000; dearness allowance: Rs. 12,300 (forming part of salary); city compensatory allowance: Rs. 3,100; children's education allowance: Rs. 2,340 (for 3 children); Bonus Rs.15,000; house rent allowance: Rs. 16,200 (rent paid: Rs. 20,000). Employer's contribution towards recognized provident fund Rs.20,000; Balu's contribution towards recognized provident fund Rs.40000; Income of Balu from other sources in India 80,000; Find out the taxable income and tax liability of Balu for the assessment year 2016-2017.

OR

(b) Discuss various deductions available under the head salary.

4 (a) Explain briefly, house property "deemed to be let out" and how the income from such house property is determined?

OR

(b) A owns two houses, I & II. House I is let-out throughout the previous year. House II is self-occupied for nine months and let-out for three months on a monthly rent of Rs 5,000. Determine Taxable income, given the following details

	House I	House II
Municipal Value	40000	50000
Fair Rent	50000	48000
Rent Received	48000	15000
Municipal Taxes paid	4000	5000
Insurance Premium (not yet paid)	2000	2500
Ground Rent	1000	1500
Maintenance Charges	3000	3500
Electricity Bill	5000	6000

5 (a)What are the incomes chargeable under the head "Profits and Gains of Business or Profession?

OR

(b) Discuss the provisions of the IT Act, 1961 regarding: (i) Conversion of Capital Assets to Stock in Trade; (ii) Computation of Capital Gains in case of depreciable assets.

6 (a) Briefly explain person liable to pay Wealth Tax.

OR

(b) Explain the valuation of immovable property.

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: 404-AT 2: INDIRECT TAXES

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

a. Benefits of GST
b. Goods Exempted from GST
c. Input Tax Credit
d. Features of Indirect Taxes
e. Baggage
f. CGST vs IGST
g. Indian Territorial waters and Customs waters
h. Duty Draw Back

SECTION – B

Answer the following 5X10=50 M

2. (a) Discuss the general framework for GST in India. Explain major advantages and disadvantages with GST.

OR

(b) What do you mean by supply of goods and services? How does composite supplies dealt with in GST?

3 (a) What are the general powers of Government to grant exemption from GST? List out various goods and services that are exempt from tax.

OR

(b) Practical Question on Calculation of Taxable turnover.

4. (a) Explain various steps involved in the process of registration for GST? List various types of returns used in GST.

OR

(b) Practical question on Computation of ITC (Input Tax Credit).

5 (a) What is the basis for levy of Customs duty? Explain various types of customs duties?

OR

(b) ABC Ltd. has imported a machinery to be used for providing a taxable service. The assessable value of imported machinery under customs laws is 2,00,000.

Basic customs duty is payable @ 10%. If the machinery is manufactured in India, excise duty @ 12.5% is leviable on such machinery. Education cess and secondary and higher education cess of customs are as applicable. Special CVD is payable on said machinery @ 4%. You are required to:-

(i) Calculate the total customs duty payable.

(ii) Examine whether ABC Ltd. can avail any CENVAT credit of the custom duties so paid? If

Yes, how much?

6 (a) List out various procedures to be followed in importation of into India by Air/Sea/Land?

OR

(b) What is the Procedure for importing goods through Post offices in India?

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: 405-AT 3: TAX PLANNING AND MANAGEMENT

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any FIVE of the following 5X5=25 M

(a) Tax Evasion
(b) Tax Planning
(c) Perquisites
(d) HUF
(e) Types of Companies
(f) SEZs
(g) Dividend
(h) Firm

SECTION – B

Answer the following 5X10=50 M

2 (a) What is meant by tax management? Describe the elements to be covered under it.

OR

(b) Throw light on the need and importance of tax-planning. Explain various types of tax planning.

3 (a) Explain briefly tax planning for salaried persons.

OR

(b) Explain the applications Sec 80C in reducing the tax bill of salaried persons.

4 (a) Explain the assessment of HUF and Firms.

OR

(b) Explain the allowance and disallowance for remunerations paid to partners.

5 (a) What is meant by Company? Explain the tax rates and relating to company assessment.provisions

OR

(b) Explain the dividend distribution tax and deemed dividend.

6 (a) Discuss tax planning according to the forms of small business organization.

OR

(b) What are the exemptions and provisions relating to SEZs, Software Parks?

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: 403- FB 1: ADVANCED BANKING

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following 5X5=25 M

(a) Credit Control
(b) RBI
(c) Central Banking
(d) Asset Management
(e) Capital Markets
(f) Fiscal Policy
(g) Financial Reforms
(h) Debt Management Policy

SECTION – B

Answer the following 5X10=50 M

2 (a) Explain the concept and functions of Central Banking.

(OR)

(b) Briefly explain the role and structure of RBI.

3 (a) What are the objectives and techniques of Central Banking Policy?

(OR)

(b) Explain the structure and organization of Central Bank in USA and UK.

4 (a) Explain the recent developments in Commerce Banking in USA, UK and India.

(OR)

(b) Explain the nature and structure of Commercial Banking in India.

5 (a) Distinguish between Monetary Policy and Economic Stabilization.

(OR)

(b) What are the objectives and functions of Monetary Policy?

6 (a) Briefly explain the financial sector reforms in India.

(OR)

(b) Explain the issues and impact of financial reforms.

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: 404- FB 2: RURAL BANKING

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following 5X5=25 M

(a) Rural Economy
(b) Financial Inclusion
(c) Urban Housing Schemes
(d) Poverty Alleviation
(e) Educational Loans
(f) SHGs
(g) Rural Financing
(h) Rural India

SECTION – B

Answer the following 5X10=50 M

2 (a) What are the main causes and methods of measuring rural poverty?

(OR)

(b) Explain the economic reforms and its impact on rural economy.

3 (a) Explain the functions and policies of RBI and NABARD.

(OR)

(b) Briefly explain the role of information and communication technologies in rural banking.

4 (a) Discuss the concept of its role in inclusive growth.

(OR)

(b) Briefly explain the business facilitators and business correspondents in rural financing.

5 (a) Briefly explain poverty alleviation programmes/ Employment Programmes/ Production oriented programmes.

(OR)

(b) Discuss the rural housing and urban housing schemes under priority sector.

6 (a) Briefly explain the problems and prospects of rural banking.

(OR)

(b) Explain the emerging trends in rural banking.

ADIKAVI NANNAYA UNIVERSITY

M. Com IV Semester

MODEL QUESTION PAPER

Paper: 405- FB 3: FINANCIAL INSTITUTIONS

(Effective from the Admitted batch of 2019-2020)

Time: 3 hrs Max Marks: 75

SECTION - A

1 Answer any **FIVE** of the following 5X5=25 M

(a) Financial System
(b) NBFCs
(c) RBI
(d) NBSFO
(e) Asset Finance Company
(f) Infrastructure Finance Company
(g) Loan Company
(h) Financial Performance

SECTION – B

Answer the following 5X10=50 M

2 (a) Briefly explain the role of Financial Institutions.

(OR)

(b) Explain the concept and structure of Financial Institutions.

3 (a) Briefly explain the concept, scope and objectives of Non-Bank Financial Companies.

(OR)

(b) Explain the functions and role of Non-Bank Financial Companies.

4 (a) Explain the structure and growth of NBFCs.

(OR)

(b) Briefly explain the overview of the present position of NBFCs.

5 (a) Explain the concept and structure of Non-Bank Statutory Financial Organizations.

(OR)

(b) What are the functions and role of NBSFOs.

6 (a) Explain the reforms in NBSFOs.

(OR)

(b) Briefly explain the financial performance of Non-Bank Statutory Financial Organizations.

Subject to the approval of Hon'ble Vice-Chancellor

Course Structure & Syllabus

for

M.Sc. Organic Chemistry

(Syllabus for Semesters I & II is common for M.Sc. Analytical Chemistry and

M.Sc Organic Chemistry and M.Sc Physical Chemistry)

2019-2020

ADIKAVI NANNAYA UNIVERSITY

Rajamahendravaram

Course Structure of M.Sc. Organic Chemistry

S. No.	Semester	Code of the paper	Title of the paper	Theory/ Practical /Viva	Internal marks	External marks	Total marks	Credits
1.	Semester-I	CHE01	General Chemistry-I	T	25	75	100	4
2.		CHE02	Inorganic Chemistry-I	T	25	75	100	4
3.		CHE03	Organic Chemistry-I	T	25	75	100	4
4.		CHE04	Physical Chemistry-I	T	25	75	100	4
5.		CHEP01	Inorganic Chemistry Practical-I	P	25	75	100	3
6.		CHEP02	Organic Chemistry Practical-I	P	25	75	100	3
7.		CHEP03	Physical Chemistry Practical-I	P	25	75	100	3
8.	Semester-II		General Chemistry-II	T	25	75	100	4
9.			Inorganic Chemistry-II	T	25	75	100	4
10.			Organic Chemistry-II	T	25	75	100	4
11.			Physical Chemistry-II	T	25	75	100	4
12.			Inorganic Chemistry Practical-II	P	25	75	100	3
13.			Organic Chemistry Practical-II	P	25	75	100	3
14.			Physical Chemistry Practical-II	P	25	75	100	3
15.	Semester-III		Organic Reaction Mechanisms-I and Pericyclic reactions-I	T	25	75	100	4
16.			Organic Spectroscopy-I	T	25	75	100	4
17.			Organic Synthesis-I	T	25	75	100	4
18.			Chemistry of Natural Products	T	25	75	100	4
19.			Multistep synthesis of Organic Compounds	P	25	75	100	4
20.			Estimations and Chromatography	P	25	75	100	4
21.	Semester-IV		Organic Reaction Mechanisms-II and Organic Photochemistry	T	25	75	100	4
22.			Organic Spectroscopy-II	T	25	75	100	4
23.			Organic Synthesis-II	T	25	75	100	4
24.			Bio-Organic Chemistry	T	25	75	100	4
25.			Chromatographic separation, Isolation and Identification of Natural Products	P	25	75	100	4
26.			Spectral Identification of Organic Compounds(UV, IR, ^{1}H-NMR,^{13}C-NMR & MASS)	P	25	75	100	4
27.			Comprehensive viva-voce	V	----	50	50	4
					Total Credits			100

Note: I & II Semesters syllabus and course structure are common for M. Sc. Organic Chemistry/Analytical Chemistry /Physical Chemistry courses.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FIRST SEMESTER- SYLLABUS
(With effect from 2019-20 admitted batch)

Paper- I: GENERAL CHEMISTRY-I

UNIT-1

Basic Quantum Chemistry-I- Wave equation-interpretation of wave function-properties of wave function-normalization and orthogonalisation, Operators- linear and non-linear- commutators of operators. Postulates of quantum mechanics; setting up of operators to observables; Hermitian operator- Eigen values and Eigen functions of Hermitian operator; Expansion theorems. Eigen functions of commuting operators-significance. Simultaneous measurement of properties and the uncertainty principle.

UNIT-II

Basic Quantum Chemistry-II- Wave mechanics of simple systems with constant potential energy, particle in one-dimensional box- factors influencing color transition- dipole integral, Symmetry arguments in deriving the selection rules, the concept of tunneling- particle in three -dimensional box. Calculations using wave functions of the particle in a box- Orthogonality, measurability of energy, position and momentum, average values and probabilities. Rigid rotor, Wave mechanics of systems with variable potential energy-simple harmonic oscillator- solution of wave equation- selection rules.

UNIT-III

Fundamentals of Molecular Spectroscopy-I: Microwave and IR- Spectroscopy- Rotational spectra of diatomic molecules- Rigid rotor-Selection rules- Calculations of bond length- Isotopic effect, Second order stark effect and its applications. Infrared spectra of diatomic molecules- harmonic and anharmonic oscillators- Selection rules- Overtones- Combination bands- Calculation of force constant, anharmonicity constant and zero point energy. Fermi resonance, simultaneous vibrational-rotational spectra of diatomic molecules.

UNIT- IV

Fundamentals of Molecular Spectroscopy-II: Raman and Electronic Spectra- Classical and quantum mechanical explanations- Rotational Raman and Vibrational Raman spectra. Electronic spectra of diatomic molecules- Vibrational Coarse structure- intensities of spectral lines- Franck-Condon principle- applications, Rotational Fine structure- band head and band shading. Charge transfer spectra

References/ Text books

1. Fundamentals of Molecular spectroscopy: by C.N. Banwell
2. Molecular spectroscopy: by B.K.Sharma
3. Molecular spectroscopy: by Aruldas
4. Introductory quantum mechanics: by A.K. Chandra
5. Quantum chemistry: by R.K. Prasad

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FIRST SEMESTER- SYLLABUS
(With effect from 2019-20 admitted batch)

Paper- II: INORGANIC CHEMISTRY-I

UNIT-1

Structure & Bonding: Applications of VSEPR, Valence Bond and Molecular orbital theories in explaining the structures of simple molecules- role of p and d orbitals in π-bonding. Application of MO theory to Tetrahedral $[CoCl_4]^{2-}$, Square planar ($[PtCl_4]^{2-}$) and Octahedral complexes ($[CoF_6]^{3-}$, $[Co(NH_3)_6]^{3+}$). Classification of ligands based on π-bonding using MO theory. Walsh diagram for H_2O molecule.

UNIT-II

Inorganic cage and ring compounds – preparation, structure and reactions of boranes, carboranes, metallocarboranes. Electron counting in boranes – Wades rules (Polyhedral skeletal electron pair theory).

Heterocyclic inorganic ring systems: Boron–Nitrogen ($H_3B_3N_3H_3$), Phosphorus–Nitrogen ($N_3P_3Cl_6$) and Sulphur-Nitrogen (S_4N_4, $(SN)_x$) cyclic compounds.

Cage Compounds: Phosphorous oxides and Phosphorous sulphides.

Isopoly and heteropoly anions.

UNIT-III

Coordination compounds: Crystal field theory - crystal field splitting patterns in octahedral, tetrahedral, tetragonal, square planar, square pyramidal and trigonal bipyramidal geometries. Calculation of crystal field stabilization energies. Factors affecting crystal field splitting energies – Spectrochemical series – Jahn – Teller effect, nephelauxetic effect – ligand field theory.

Term symbols – Russell – Sanders coupling – derivation of term symbols for various configurations. Spectroscopic ground states.

UNIT- IV

Electronic spectra of transition metal complexes: Types of electronic transitions – d-d transitions - Selection rules, break down of selection rules – Orgel and Tanabe-Sugano diagrams for d^1 –d^9 octahedral and tetrahedral transition metal complexes of 3d series – Calculation of Dq, B and β parameters. Charge transfer spectra.

Magnetic properties of transition and inner transition metal complexes – spin and orbital moments – quenching of orbital momentum by crystal fields in complexes.

Reference books & Text books:

1. Advanced Inorganic Chemistry by F.A. Cotton and G. Wilkinson, IV Edition, John Wiley and Sons, New York, 1980.
2. Inorganic Chemistry by J.E. Huheey, III Edition, Harper International Edition, 1983.
3. Theoretical Inorganic Chemistry, II Edition by M.C. Day and J. Selbin, Affiliated East-West press pvt. Ltd., New Delhi.
4. Inorganic Chemistry by Shriver and Atkins, Oxford University Press (1999).
5. Inorganic Chemistry 5th Edition by Gary L. Miessler et al, Pearson Publications.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FIRST SEMESTER- SYLLABUS
(With effect from 2019-20 admitted batch)

Paper –III: ORGANIC CHEMISTRY -I

UNIT – I

Nature of bonding in organic molecules and Aromaticity 15 Hrs

(A) *Electronic Effects and Reactive intermediates:*-Inductive effect, Mesomeric effect (Resonance), Hyperconjugation, Steric effect, Tautomerism, Generation, structure, stability and reactivity of carbocations, carbanions, free radicals, carbenes, nitrenes and arynes

(B) *Criteria of Aromaticity:*- Huckle`s rule and MO Theory, aromaticity in benzenoid non-benzenoid compounds, Aromaticity in Charged and Fused-Ring Systems, Hetero-aromatic Systems, Annulenes: Cyclobutadiene, Benzene,1,3,5,7-Cyclooctatetraene, [10] Annulenes- [12], [14], [16] and [18] annulenes, azulenes, fulvenes, fullerenes, ferrocene, anti-aromaticity and homo-aromaticity.

UNIT – II

Stereo Chemistry & Molecular representation of organic molecules 20 Hrs

(A) Molecular Symmetry and Chirality:-Symmetry elements, Definition and classification of Stereoisomers, Enantiomer, Diastereomer, Homomer, Epimer, Anomer, Configuration and Conformation, Configurational nomenclature: D,L and R, S nomenclature, Molecules with a single chiral center: Molecules with two or more chiral centers.

(B) Geometrical Isomerism and Conformations of Cyclic Systems:- Cis-trans, E, Z- and Syn & anti nomenclature, Methods of determining configuration of Geometrical isomers using physical, spectral and chemical methods, Stability, Cis-trans inter conversion. Conformations of cyclobutane, cyclopentane, cyclohexane, mono and disubstituted cyclohaxanes.

(C) Prochirality and Prostereoisomerism:- Homotopic ligands and faces; enantiotopic ligands and faces; diastereotopic ligands and faces; nomenclature of enantiotopic ligands and faces (Pro-R, Pro-S, Re, Si carbonyl compounds and Alkenes)

(D) Stereoisomerism in molecules without chiral Center -Axial chirality Allenes, Alkylidene cycloalkanes, spiranes, nomenclature. *Atropisomerism:* Biphenyl derivatives, nomenclature. *Planar chirality*: Ansa compounds, paracyclophanes, trans-cyclooctene and Helicity.

UNIT – III

Heterocyclic compounds 15 Hrs

Importance of heterocyclic compounds as drugs. Nomenclature of heterocyclic systems based on ring size, number and nature of hetero atoms. Chemistry of heterocyclic compounds, synthesis and reactivity of the following systems: Quinoline, Isoquinoline, Indole, Pyrazole, Imidazole, Oxazole, Isoxazole, Pyridazine, pyrimidine and Pyrazine.

UNIT - IV

Chemistry of some typical natural products (Alkaloids and Terpenoids) 10 Hrs

A study of the following compounds involving their isolation, structure elucidation, synthesis and biogenesis of

Alkaloids; Atropine, Nicotine, and Quinine.

Terpenoids: α- Terpeneol, α-Pinene and Camphor.

Books Suggested:

1. Advanced Organic Chemistry-Reactions, Mechanism and structure, Jerry March, 6th Ed. (John Wiley & Sons).
2. Organic Chemistry, Paula Yurkanis Bruice, 4th Ed. (Printice Hall)
3. Organic chemistry-Clayden J. (Oxford)
4. Organic Chemsitry, Wade, L.G. Jr. 5th Ed. (Pearson)
5. Advanced Organic Chemistry: Reactions and mechanisms, Miller Bernard & Other, 2nd Ed. (Pearson)
6. Mechanism and Theory in Organic Chemistry, Thomas H. Lowry, Kathleen S. Richardson, Harper & Row, (Publishers, Inc.).
7. A Guide Book to Mechanism in Organic Chemistry, Peter Sykes, 6th Ed., (Longman).
8. Reaction Mechanism in Organic Chemistry, P.S. Kalsi, 2nd Ed. (New Age International).
9. Organic Chemistry, R. T. Morrison and R. N. Boyd (Prentice-Hall)
10. Stereochemistry to Organic Compounds, E.L. Eliel (John Wiley).
11. Stereochemistry, P.S. Kalsi, 5th Ed. (New Age International).
12. Organic Chemistry Structure and Reactivity, Ege Seyhan, 3rd Ed. (AITBS)
13. Heterocyclic Chemistry, J.A.Joule, K. Kills and G. F. Smith, Chapman and Hall
14. Heterocyclic Chemistry, T.L.Gilchrist, Longman Scientific Technical
15. Heterocyclic Chemistry, Raj.K. Bansal.
16. An Introduction to the Heterocyclic Compounds, R. M. Acheson, John Wiley.

REFERENCE BOOKS:

1. Chemistry of Natural Products, K.W.Bentley
2. Stereochemistry of carbon compounds by E.Eliel, John Wiley & Sons, Inc.
3. Stereochemistry to Organic Compounds, D. Nasipuri, 2nd Ed. (New Age International).
4. Chemistry of Natural products by R.S. Kalsi Kalyani Publishers. 1983.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FIRST SEMESTER- SYLLABUS
(With effect from 2019-20 admitted batch)

Paper – IV: PHYSICAL CHEMISTRY-I

UNIT-I:

Thermodynamics-I: Concepts of partial molar properties – partial molar volume and its significance; Determination of partial molar volume: Graphical method, intercept method and apparent molar volume method. Partial molar free energy, chemical potential, Variation of chemical potential with T and P. Gibbs-Duhem equation-derivation and significance. Phase equilibrium- Derivation of phase rule from the concept of chemical potential. *Ideal solutions* - Thermodynamic properties of ideal solutions mixing quantities; Vapour pressure-Raoult's law; Thermodynamic properties of ideally dilute solutions. Vapour pressure- Henry's law.

Non-ideal systems -Concept of fugacity, fugacity coefficient. Determination of fugacity; Non ideal solutions. Activities and activity coefficients; Standard-state conventions for non ideal solutions; Determination of activity coefficients from vapour pressure measurements. Activity coefficients of non-volatile solutes using Gibbs-Duhem equation. Chemical equilibrium- effect of temperature on equilibrium constant- Van'tHoff equation

UNIT-II:

Micelles and Macro molecules: Surface active agents, classification of surface active agents, micellization, hydrophobic interaction, critical micellar concentration (CMC), factors affecting the CMC of surfactants, counter ion binding to micelles, thermodynamics of micellization- phase separation and mass action models, Solubilization, micro emulsion, reverse micelles.

Polymer- definition, types of polymers, electrically conducting, fire resistant, liquid crystal polymers, kinetics of free radical polymerization. Molecular mass- Number and mass average molecular weight, molecular weight determination-End group analysis, Osmometry, viscometry, ultracentrifugation and light scattering methods.

UNIT-III:

Chemical Kinetics: Theories of reaction rates- Collision theory- Limitations, Transition state theory. Effect of ionic strength - Debye Huckel theory-Primary and secondary salt effects; Effect of dielectric constant, effect of substituent, Hammett equation-limitations, Taft equation; Prediction of rate constants- Consecutive reactions, parallel reactions, opposing reactions (Uni molecular steps only, no derivation). Specific and general acid-base catalysis; Skrabal diagram; Fast reactions- different methods of studying fast reactions- flow methods, relaxation methods- temperature jump and pressure jump methods.

UNIT-IV:

Photochemistry: Electronic transitions in molecules, Franck-Condon principle. Electronically excited molecules- singlet and triplet states, spin-orbit interaction. Quantum yield and its determination; Actinometry - ferrioxalate and uranyl oxalate actinometers-problems. Derivation of fluorescence and phosphorescence quantum yields. Quenching effect- Stern Volmer equation. Photochemical equilibrium and delayed fluorescence - E type and P type. Photochemical primary processes, types of photochemical reactions-photodissocoation, addition and isomerisation reactions with examples.

Books:

1. Physical Chemistry by Peter Atkins and Julio de Paula, Oxford University Press.
2. Physical Chemistry by G.W. Castellon, Narosha Publishing House
3. Physical Chemistry by W.J.Moore, Prentice Hall
4. Thermodynamics for Chemists, Samuel Glasstone
5. Chemical Kinetics by K.J.Laidler, McGraw Hill Pub.
6. Photochemistry, R.P. Kundall and A. Gilbert, Thomson Nelson.
7. Polymer Chemistry by Billmayer
8. Introduction to Polymer Science, V.R. Gowriker, N.V.Viswanadhan and J. Sreedhar., Wiley Easter.
9. Micells, Theoretical and applied aspects, V.Morol, Plenum publishers.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FIRST SEMESTER- SYLLABUS
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LABORATORY WORK (6 hrs/week)

Practical-1

INORGANIC CHEMISTRY PRACTICALS - I

I. *Inorganic Synthesis: Preparation of*

(i) Tetraamminecopper(II) sulphate

(ii) Potassium tris(oxalato)ferrate(III) trihydrate

(iii) Tris(thiourea)copper(I) sulphate

II. *Semi micro qualitative analysis of six radical mixtures*

(One interfering anion and one less familiar cation for each mixture)

Anions: CO_3^{2-} , S^{2-} , SO_3^{2-} , Cl^- , Br^- , I^- , NO_3^- , SO_4^{2-}, CH_3COO^-
$C_2O_4^{2-}$, $C_4H_4O_6^{2-}$, PO_4^{3-} , CrO_4^{2-}, AsO_4^{3-}, F^- , BO_3^{3-}

Cations : Ammonium (NH_4^+)
1st group: Hg, Ag, Pb, Tl, W
2nd group: Hg, Pb, Bi, Cu, Cd, As, Sb, Sn, Mo
3rd group: Fe, Al, Cr, Ce, Th, Ti, Zr, V, U, Be
4th group: Zn, Mn, Co, Ni
5th group: Ca, Ba, Sr
6th group: Mg, K, Li

Recference books:

Vogel's textbook of semimicro qualitative analysis, 5th Edition by G. Svehla.

Practical-2

ORGANIC CHEMISTRY PRACTICALS -I

Preparation, recrystallization, and determination of melting point & yield of the following compounds:

(i)	Aspirin,	(ii)	Nerolin,	(iii)	Chalcone,
(iv)	*p*-Nitro acetanilide,	(v)	2,4,6- Tribromoaniline,	(vi)	*m*-Dinitrobenzene,
(vii)	Phthalimide,	(viii)	Diels-Alder adduct.		

Books Suggested

1. Vogel's Text Book of Quantitative Chemical Analysis, J. Mendham, R. C. Denney, J. D. Barnes and M. J. Thomas, 4th & 6th Ed. (Pearson Education Asia).

2. Vogel's Text Book of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, P.W.G. Smith, A.R. Tatchell, 5 Ed. (Longman Scientific & Technical)

Practical-3

PHYSICAL CHEMSITRY PRACTICALS -I

1. Determination of critical solution temperature of phenol-water system.
2. Effect of added electrolyte on the CST of phenol-water system.
3. Conductometric titration of Strong acid versus Strong base
4. Dissociation constant of weak acid (CH_3COOH) by conductometric method.
5. Conductometric titration of Weak acid vs Strong base.
6. Determination of cell constant
7. Adsorption of acetic acid on animal charcoal or silica gel.
8. Acid-catalyzed hydrolysis of methyl acetate
9. Determination of partial molar volume of solute –H_2O system by apparent molar volume method.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
SECOND SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper- I: GENERAL CHEMISTRY-II

UNIT-1

Basic Quantum Chemistry-III- Hydrogen atom- solution of R(r), Φ (ϕ) and Θ (θ) equations. Probability density in orbitals- shapes of orbitals- Perturbation theory- Time independent perturbation theory(only first order perturbation is to be dealt with)- application to ground state energy of Helium atom- Variation principle- applications- calculation of zero-point energy of harmonic oscillator- many electron atom- Hartee-Fock self-consistent field method(qualitative treatment only)

UNIT-II

Molecular symmetry and Group Theory in chemistry: Basic concepts of symmetry and Group theory-Symmetry elements, symmetry operations and point groups- Schoenflies symbols- Classification of molecules into point groups- Axioms of Group theory- Group multiplication tables for C_{2v} and C_{3v} point groups- Similarity transformations- and classes- Representations- reducible and irreducible representations, Mullikan symbols, Orthogonality theorem and its implications, Character table and its anatomy.

UNIT-III

Treatment of analytical data: Accuracy and precision- Classification of errors- Determinate and Indeterminate errors- Minimization of errors- Absolute and Relative errors, propagation of errors-Distribution of Indeterminate errors- Gaussian distribution- Measures of central tendency-Measures of precision- Standard deviation- Standard error of mean- student's t-test- Confidence interval of mean- Testing for significance- Comparison of two means- F-test- Criteria of rejection of an observation- Significant figures and computation rules.

UNIT- IV

Introduction to computer programming- FORTRAN 77: Basic structures and functioning of computer with P.C. as an illustrative example- Main memory- Secondary storage memory- input/output devices- computer languages- operating systems- principles of algorithms-and flow charts-constants and variables- Arithmetic expressions- Arithmetic statements- Replacement statement- IF statement- logical IF and BLOCK IF statements- GOTO statements-subscripted variable and DIMENSION statement. DO statement- Rules for DO statement- Functions and subroutines- Development of FORTRAN statements for simple formulae in chemistry such as Vander Waals equation- pH of a solution- First order rate equation- Cell constant-Electrode potential.

Flowcharts and computer programs for

a) Program for the calculation of Cell Constant, Specific Conductance and Equivalence.
b) Rate Constant of First order reaction or Beer's law by linear least square method.
c) Hydrogen ion concentration of a strong acid solution/Quadratic equation.
d) Solution for Vander Waals equation or Hydrogen ion concentration of a monoprotic weak acid
e) Standard deviation and Variance of univariant data

References/ Text books:

1. Introductory Quantum chemistry: by A.K. Chandra
2. Group theory for Chemistry: by A.K. Bhattacharya, 3. Chemical Applications of Group Theory by FA Cotton, 3rd Edition, Wiley Interscience Newyork
3. Introductory Group theory for chemists : by George Davidson
4. Vogel's text book of quantitative analysis: by Vogel
5. Fundamentals of Analytical chemistry: by Skog and West
6. Principles of computer programming(FORTRAN 77 IBM PC): by V.Rajaraman
7. Basics of computers for chemists: by P.C. Jurs

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
SECOND SEMESTER- SYLLABUS
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Paper- II: INORGANIC CHEMISTRY-II

UNIT-I

Metal cluster compounds - definition – evidences for existence of M-M bonds - conditions favorable for formation of M-M bonds – preparation, structure and bonding of the following metal cluster compounds.

$Re_2Cl_8^{2-}$, $Mo_2Cl_8^{4-}$, $Re_2(RCOO)_4X_2$, $Mo_2(RCOO)_4(H_2O)_2$, $Cr_2(RCOO)_4(H_2O)_2$, $Cu_2(RCOO)_4(H_2O)_2$, $Cr_2Cl_9^{3-}$, $Mo_2Cl_9^{3-}$, $W_2Cl_9^{3-}$, Re_3Cl_9, $Re_3Cl_{12}^{3-}$, $Mo_6Cl_8^{4+}$, $Nb_6X_{12}^{2+}$ and $Ta_6X_{12}^{2+}$.

Polyatomic clusters – Zintle ions, Chevrel phases.

UNIT-II

Organometallic compounds - 16 and 18 electron rules. Isoelectronic relationship - Synthesis, structure, bonding and reactions of carbon monoxide, dinitrogen and nitric oxide complexes. Isolobal relationship – H, Cl, CH_3, $Mn(CO)_5$; S, CH_2, $Fe(CO)_4$; P, CH, $Co(CO)_3$. Synthesis, structure, bonding and reactions of metallocenes with special reference to ferrocene. Catalysis by Organometallic compounds – Homogeneous Catalysis – Alkene hydrogenation – Wilkinson's catalyst, Hydroformylation.

UNIT-III

Metal Ligand equilibria in solution: Stepwise and overall formation constants and their interaction– trends in stepwise constants – factors affecting the stability of metal complexes–Pearson's theory of hard and soft acids and bases (HSAB), chelate effect and its thermodynamic origin, determination of stability constants of complexes–spectrophotometric method and pH–metric method. Reactivity of metal complexes–inert and labile complexes. Explanation of lability on the basis of VBT & CFT.

Bio-Inorganic Chemistry: Metalloporphyrins with special reference to Haemoglobin& Myoglobin. Biological role of alkali and alkaline earth metal ions with special reference to Ca^{2+}. Biological and abiological Nitrogen Fixation.

UNIT- IV

Inorganic Reaction Mechanisms: Substitution reactions of metal complexes – D, Id, Ia and A mechanisms – Ligand replacement reactions of octahedral complexes – Acid hydrolysis – factors affecting acid hydrolysis – Anation and Base hydrolysis of Cobalt(III) complexes. Ligand displacement reactions of square planar complexes of platinum (II). Factors affecting square planar substitution – trans effect (theories).

Electron transfer reactions of complexes – concept of complementary and non-complementary reactions with examples. Inner and outer sphere mechanisms.

Text books:

1. Advanced Inorganic Chemistry by F.A. Cotton and R.G. Wilkinson, IV Edition, John, John Wiley and Sons, New York, 1980.
2. Inorganic Chemistry by J.E. Huheey, III edition, Harper International Edition, 1983.
3. Organometallic Chemistry-A unified approach by A. Singh and R.C. Mehrotra, Wiley Eastern Ltd.
4. Inorganic Chemistry by Shriver and Atkins, Oxford University Press (1999)
5. Theoretical Inorganic Chemistry, II Edition by M.C. Day and J. Selbin, Affiliated East-West press Pvt. Ltd..
6. Mechanisms of Inorganic reactions in solution by D.Benson, MCgraw Hill, London, 1968.
7. Inorganic chemistry by K.F. Purcell and J.C.Kotz, W.B. Saunders company, New York, 1977.
8. Elements of Bioinorganic Chemistry by G.N. Mukherjee and Arabinda Das, U.N. Dhur& sons Pvt. Ltd, Calcutta.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
SECOND SEMESTER- SYLLABUS
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Paper-III: ORGANIC CHEMISTRY-II

UNIT-I

Reaction Mechanism **15Hrs**

(*A) Aliphatic Nucleophilic Substitution and Nucleophilic Aromatic substitution:* Stereochemistry of S_N2 and S_N1 mechanisms, Neighboring Group Participation (Anchimeric assistance), NGP by O, S, N: Aromatic Nucleophilic substitution: SN2 (Ar) (Addition – Elimination), SN1(Ar) and benzyne mechanisms (Elimination - Addition); evidence for the structure of benzyne. Von Richter Sommelet-Hauser rearrangements.

(B) Elimination Reactions: Type of elimination reactions, mechanisms, Stereochemistry and Orientation, Hofmann and Saytzeff rules, Syn elimination versus anti-elimination, competition between elimination and substitution, dehydration, dehydrogenation, dehalogenation, decarboxylative eliminations and pyrolytic eliminations

UNIT-II

Addition Reactions **15 Hrs**

(A) Addition to Carbon – Carbon Multiple Bonds: Mechanistic and stereo chemical aspects of addition reactions involving electrophiles, nucleophiles and free radicals, region and chemo selectivity, orientation and reactivity, Hydrogenation of double and triple bonds, hydrogenation of aromatic rings, Hydroboration.

(B) Addition to Carbon-Hetero Multiple Bonds: Steric course of addition reactions to C=O and C=N, Aldol, Cannizzaro, Perkin, Knoevenagel, Claisen- Schmidt, Claisen, Dieckman, Benzoin and Stobbe condensations, Reformatsky reaction, Tollen's reaction, Prins reaction: Wittig, Grignard, Mannich, and Michael reaction.

UNIT-III

Molecular Rearrangements **15 Hrs**

Types of molecular rearrangements, migratory aptitude*;* Rearrangements to electron deficient carbon: Pinacol-pinacolone, Wagner-Meerwein, Tiffeneau – Demjanov, Dienone – Phenol, Arndt-Eistert synthesis*;*

Rearrangements to electron deficient nitrogen: Beckmann, Hofmann, Curtius, Schmidt and Lossen rearrangements; *Rearrangements to electron deficient oxygen:* Baeyer-villiger, Hydro peroxide rearrangement and Dakin rearrangements; Neber rearrangement, Benzil-Benzilic acid and Favorskii rearrangements

UNIT-IV

Spectroscopy and Protecting Groups **15 Hrs**

A. i) U.V. Visible absorption laws, Electronic excitations and absorption shifts
   ii) I.R. : Fundamental modes of vibrations in IR Spectroscopy, Finger Print Region and its importance.
   iii) NMR: Chemical shift and its importance, Coupling constant and its importance, Factors affecting chemical shift and coupling constant, Dueteration-deuterium exchange and Deuterium Labeling.
   iv) Mass: Some usefulterms used in Mass spectrometry: Molecular ion, Fragmentation, Cleavage, Rearrangement, Loss of small molecules, Isotope Abundance, Metastable ions, Even-electron rule, Nitrogen rule, Mc Lafferty Rearrangement.
B. Protection of carbonyl, Hydroxyl, carboxylic and Amine groups

Books Suggested:

1. Advanced Organic Chemistry-Reactions, Mechanism and structure, Jerry March, 6th Ed. (John Wiley & Sons).
2. Modern Organic Reactions, H. O. House (Benjamin)
3. Structure and Mechanism in Organic Chemistry C. K. Inglod (Comell University Press).

4. Organic Chemistry, Paula Yurkanis Bruice, 4th Ed. (Printice Hall)
5. Organic chemistry-Clayden J. (Oxford)
6. Organic Chemsitry, Wade, L.G. Jr. 5th Ed. (Pearson)
7. Organic Chemistry, Salmons, P.W. & Others, 8th Ed. (John Wiley & Sons)
8. Advanced Organic Chemistry: Reactions and mechanisms, Miller Bernard & Other, 2nd Ed. (Pearson)
9. Mechanism and Theory in Organic Chemistry, Thomas H. Lowry, Kathleen S. Richardson, Harper & Row,
10. (Publishers, Inc.).
11. A Guide Book to Mechanism in Organic Chemistry, Peter Sykes, 6th Ed., (Longman).
12. Reaction Mechanism in Organic Chemistry, P.S. Kalsi, 2nd Ed. (New Age International).
13. Stereochemistry to Organic Compounds, E.L. Eliel (John Wiley). 13. Stereochemistry to Organic Compounds, Nasipuri, 2nd Ed. (New Age International).
14. Stereochemistry, P.S. Kalsi, 5th Ed. (New Age International). Organic Chemistry Structure and Reactivity, Ege Seyhan, 3rd Ed. (AITBS)
15. Spectroscopic Methods in Organic Chemistry- Forth Edition, D.H. Williams and I. Fleming Tata - McGraw Hill, New Delhi, 1990.
16. Organic Spectroscopy- Second Edition, W.Kemp, ELBS Macmillan, 1987.
17. Applications of absorption spectroscopy of Organic Compounds J.R.Dyer, Prentice Hall of India, New Delhi, 1984.
18. Spectrometric identification of Organic Compounds-Fourth Edition, R.M. Silverstein: G.C.Vassiellr and T.C. Merill, Johne Willey, Singapore, 1981.
19. Introduction to spectroscopy-D.L.Pavia, G.M.Lampman, G.S.Kriz, 3rdEd (Harcourt college publishers).

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
SECOND SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – IV: PHYSICAL CHEMISTRY-II

UNIT-I:

Physical methods of molecular structural elucidation: NMR: Principle and theory, Nature of spinning particle and its interaction with magnetic field. Chemical shift and its origin. Spin-Spin interaction, Application of NMR to structural elucidation- Structure of ethanol, dimethylformamide, styrene and acetophenone.

Electron Spin Resonance: Principle and experimental technique- g-factor, line shapes and line widths- hyperfine interactions- applications of ESR studies.

UNIT -II:

Thermodynamics-II- Brief review on entropy; entropy changes accompanying specific process – expansion, phase transition, heating, measurement of entropy. Nernst heat theorem; Third law of thermodynamics- Determination of the absolute entropy- Apparent exceptions to Third law of thermodynamics.

Statistical Thermodynamics: Objectives of statistical thermodynamics, Concept of distributions, Types of ensembles. Thermodynamic probability, Most probable distribution Law – Partition Function, (Definition and significance): Molar and molecular partitions-translational, rotational, vibrational and electronic partition functions- Relation between thermodynamic functions (E, H, S, G and C_v) and the partition functions

UNIT-III:

Electrochemistry I: Electrochemical cell- Galvanic and electrolytic cell. Concentration cell with and without transference, Effect of complexation on redox potential- ferricyanide/ ferrocyanide couple, Iron (III) phenonthroline / Iron (II) phenonthroline couple. Determination of standard potential, solubility product equilibrium constant and activity coefficients from EMF data.

Bjerrum theory of ion association (elementary treatment) Concept of activity and activity coefficients in electrolytic solutions. The mean ionic activity coefficient. Debye-Huckel theory of electrolytic solutions. Debye-Huckel limiting law (derivation not required), Calculation of mean ionic activity coefficient; Limitations of Debye-Huckel theory. Effect of dilution on equivalent conductance of electrolytes - Anomalous behavior of strong electrolytes. Debye Huckel-Onsagar equation – verification and limitations, Fuel Cells.

UNIT-IV:

Electrochemistry II: The electrode-electrolyte interface. The electric double layer. The Helmholtz-Perrin parallel-plate model, the Gouy-Chapman diffuse-charge model and the Stern model.

Electrodics: Charge transfer reactions at the electrode-electrolyte interface. Exchange current density and over-potential. Derivation of Butler-Volmer equation. High field approximation, Tafel equation, Low field equilibrium, Nernst equation. Voltametry-Concentration polarization, experimental techniques

Books:

1. Text book of Physical Chemistry by Samuel Glasstone, McMillan Pub.
2. Physical Chemistry by W.J.Moore, Prentice Hall
3. Physical Chemistry by G.W. Castellon, Narosha Publishing House
4. Physical Chemistry by Peter Atkins and Julio de Paula, Oxford University Press.
5. Modern Electrochemistry, 2A & 2B, JOM Bockris & A.K.N.Reddy, Plenum publishers
6. Introduction to Electrochemistry, S.Glasstone.
7. Fundamentals of Molecular Spectroscopy, Banwell
8. Spectroscopy by Straw & Walker.

9. Statistical thermodynamics , M.C.Gupta
10. Statistical Thermodynamics, M.Dole

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
SECOND SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

LABORATORY WORK (6 hrs/ week)

Practical-1

INORGANIC CHEMISTRY PRACTICALS –II

Quantitative analysis:

Volumetric:

1. Determination of Ferric iron by photochemical reduction
2. Determination of Nickel by EDTA
3. Determination of Calcium and Magnesium in a mixture by EDTA
4. Determination of Ferrocyanide by Ceric sulphate
5. Determination of Copper(II) in presence of iron(III)

Gravimetric:

6. Determination of Zinc as Zinc pyrophosphate
7. Determination of Nickel from a mixture of Copper and Nickel.

Reference books:

Vogel's textbook of quantitative chemical analysis, 5th edition by G.H. Jeffery et al.

Practical-2

ORGANIC CHEMISTRY PRACTICALS –II

Systematic qualitative analysis of an organic mixture containing two compounds

Identification of method of separation and the functional group(s) present in each of them and preparation of one solid derivative for the conformation of each of the functional group(s).

Practical-3

PHYSICAL CHEMISTRY PRACTICALS –II

1. Distribution of iodine between $CHCl_3$ and water
2. Distribution of I_2 between $CHCl_3$ and aq.KI solution- calculation of equilibrium constant.
3. Determination of Coordination number of cuprammonium cation.
4. Titration of mixture Strong acid and weak acid versus Strong base by conductometry.
5. Titration of Strong acid Vs Strong Base – pH – metry.
6. Titration of mixture of ($NaHCO_3$ + Na_2CO_3) Vs HCl – pH- metry.
7. Titration of Strong acid Vs Strong Base using Quinhydrone electrode.
8. Titration of Fe^{+2} Vs $K_2Cr_2O_7$ – potentiometry
9. Verification of Beer-Lambert's law by Iron-thiocyanate system –colorimetry.
10. Determination of single electrode potential of Cu^{2+}/Cu and estimate the given unknown concentration.

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
THIRD SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – I : ORGANIC REACTION MECHANISMS-I & PERICYCLIC REACTIONS

UNIT – I

A) Aliphatic Nucleophilic Substitution: 15 Hrs

Neighboring group participation by Bromine, Phenyl group, Non–Classical carbocations**,** NGP by Pi bond, Sigma bond and Cyclopropyl group, S_N at Allylic carbon (allylic reaarangements), S_N at Aliphatic trigonal carbon, S_N at Vinylic carbon, Ambident nucleophiles, Hydrolysis of esters ($B_{AC}2$ $_{AC}2$,$A_{AC}1$,$A_{AL}1$,$B_{AL}1$), Mechanism of estrification of carboxylic acid with an alcohol using DCC, Mayers Synthesis of aldehydes, ketones and carboxylic acids Mitsunobu reaction, Von–Braun reaction

B) Aliphatic Electrophilic Substitution:

Mechanisms of S_E2, S_E ^{1}, S_Ei, *Hydrogen as electrophile*: Hydrogen exchange; Migration of double bonds, *Halogen electophiles*. Mechanism of Halogenation of aldehydes and ketones; HVZ reaction; Halogenation of Sulphoxides & Sulphones, *Nitrogen Electrophiles*: Aliphatic diazo coupling, Diazo transfer reaction, *Carbon as Leaving groups*: Decarboxyliation of Aliphatic Acids; Dakin – West reaction; Haller–Bauer reaction.

UNIT – II 15 Hrs

Principles of asymmetric synthesis:

Introduction and terminology: Topicity in molecules Homotopic, stereoheterotopic (enantiotopic and diastereotopic) groups and faces, symmetry, substitution and addition criteria. Prochirality nomenclature: Pro-R, Pro-S, Re and Si. Stereoselective reactions:

Substrate stereoselectivity, product stereoselectivity, enantioselectivity and diastereoselectivity. Conditions for stereoselectivity: Methods for inducing enantio and diastereoselectivity. Analytical methods: % Enantiomeric excess, enantiomeric ratio, optical purity,

% diastereomeric excess and diastereomeric ratio. Techniques for determination of enantiomeric excess, specific rotation, Chiral NMR; Chiral derivatizing agents, Chiral solvent, Chiral shift reagents and Chiral HPLC.

UNIT – III 15 Hrs

Pericyclic Reactions-I

Molecular orbital symmetry, frontier orbitals of ethylene, 1,3 Butadiene, 1,3,5- Hexatriene, allyl system, classfication of pericyclic reactions FMO approach, Woodwrd- Hoffman correlation diagram method and perturbation of molecular (PMO) approach for the explanation of pericyclic reactions under thermal and photochemical conditions. Electrocyclic Reactions: Conrotatory and disotatory motions (4n) and (4n+2), allyl systems

Cycloadditions: Antarafacial and suprafacial additions, notation. of cycloadditions, (4n) and (4n+2) systems with a greater emphasis on (2+2) and (4+4) - cycloadditions, (2+2) - additions of ketenes and chelotropic reactions.

UNIT-IV 15 Hrs

Pericyclic Reactions-II

FMO approach and perturbation of molecular (PMO) approach for the explanation of sigma tropic rearrgements under thermal and photochemical conditions. suprafacial and antarafacial shifts of H Sigmatropic shift involving carbon moieties, retention and inversion of configurations, (3, 3) and (5, 5) sigmatropic rearrangements detailed treatment of Claisen and Cope rearrangements, aza-Cope rearrangement and Barton reaction.

Text Books and Reference Books:

1) Advanced Organic Chemistry: Reactions Mechanisms and Structure by Jerry March, Mc.Graw Hill and Kogakush.
2) Molecular reactions and Photochemistry by Charles Dupey and O. Chapman, Prentice Hall.
3) Pericyclic reactions by S.N. Mukharji, Mcmilan.
4) Mechanisms and Theory in Organic Chemistry by T.H. Lowery and K.S. Rich gardson.
5) The modern structural theory in Organic Chemistry by L.N.Ferguson, Pretice Hall
6) Physical Organic Chemistry by jack Hine, Mc. Graw Hill
7) Advanced Organic Synthesis, Part B-Reactions and Synthesis, Francis A. Carey and Richard J. Sudenburg, Fourth edition, Kluwer academic publishers, New York
8) Organic Synthesis, Christine Willis and Martin Willis, Oxford Chemistry primers.
9) Principles of Organic Synthesis, ROC Norman and JM Coxon, third edition, CBS, Publisher, Delhi.
10) Organic Synthesis, M. B. Smith, Mc Graw Hill, International Edition.
11) Organic Chemistry, Clayden, Greeves and Stuwart Warren.
12) Modern Organic Synthesis-an introduction by George S.Zweifel and Michael H. Nantz, W. H. Freeman & company, New York.
13) Pericyclic Reactions — a problem solving approach, Lehr and Merchand
14) Conservation of Orbital Symmetry by Woodward and Hoffmann.

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
THIRD SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – II : ORGANIC SPECTROSCOPY-I

UNIT-I

15 Hrs

UV-Visible spectroscopy:

A) Beer-Lambert's law-Deviations from Beers law-Instrumentation-Mechanics of measurement- Energy transitions– Simple chromophores- Auxochrome, Absorption shifts (Bathochromic, Hypsochromic, Hyper chromic and Hypo chromic shifts) UV absorption of Alkenes-Polyenes unsaturated cyclic systems.

B) UV absorption of carbonyl compounds: α,β-unsaturated carbonyl systems-UV absorption of aromatic systems-solvent effects-geometrical isomerism-acid and base effects-typical examples-calculation of λ max values using Woodward Fieser rules, applications.

UNIT-II

15 Hrs

Infrared spectroscopy:

A) Mechanics of measurement-Fundamental modes of vibrations-stretching and bending vibrations-Factors effecting Vibrational frequency-hydrogen bonding.

B) Finger print region and its importance, typical group frequencies for –CH,-OH, N-H, CC,-CO and aromatic systems-Application in structural determination–Examples-simple problems.

UNIT-III 15 Hrs

Nuclear Magnetic Resonance Spectroscopy (^{1}HNMR):

A) Introduction: Basic principle of- NMR Nuclear spin- nuclear resonance-saturation-Relaxation-Instrumentation.

B) Shielding and deshielding of magnetic nuclei-chemical shift and its measurements, factors influencing chemical shift – spin-spin interactions- factors influencing –coupling constant J and factors effecting J value.

C) ^{13}C NMR Spectroscopy: Similarities and Differences between PMR and CMR, general considerations, chemical shift (aliphatic, olefinic, alkyne, aromatic, hetero aromatic and carbonyl carbon), coupling constants, typical examples of CMR spectroscopy-simple systems.

UNIT-IV 15 Hrs

Mass spectrometry

- Introduction: Ion production-E1, C1, ES, MALDI and FAB- determination of Molecular weight and formulae-Behavior of organic compounds in mass spectrometer- factors affecting fragmentation.
- Mass spectral fragmentation of organic compounds, Common functional groups, molecular ion peak, meta stable peak, Mc Lafferty rearrangement, Nitrogen rule. Examples of mass spectral fragmentation of organic compounds with respect of their structure determination.

Suggested Books:

1. Spectroscopic Methods in Organic Chemistry- Forth Edition, D.H. Williams and I.Fleming Tata McGraw Hill, New Delhi, 1990.
2. Organic Spectroscopy- Second Edition, W.Kemp, ELBS Macmillan, 1987.
3. Applications of absorption spectroscopy of Organic Compounds J.R.Dyer, Prentice Hall of India, New Delhi, 1984.
4. Spectrometric identification of Organic Compounds-Fourth Edition, R.M. Silverstein: G.C.Vassiellr and T.C. Merill, Johne Willey, Singapore, 1981.
5. Introduction to spectroscopy-D.L.Pavia, G.M.Lampman, G.S.Kriz, 3rdEd (Harcourt college publishers).
6. Absorption spectroscopy of organic molecules-V.M.Parkih.
7. Nuclear Magnetic Resonance-Basic principles-Atta-Ur-Rehman, Springer-Verlag, 1986.

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
THIRD SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – III : MODERN ORGANIC SYNTHESIS -I

UNIT-I

Formation of C-C single bonds **15 Hrs**

Alkylations via enolate, Thermodynamic and kinetic enolate, Asymetric Aldol reaction: a) Chiral enolate and achiral aldehyde b) Achiral enolate and chiral aldehyde – explanation by Zimmerman Traxler model; stork enamine reaction and its synthetic applications; Organosulphur chemistry: Umpolung and its synthetic applications (Corey Seebach Reaction), sulphurylides: dimethyl sulphoniummethylide, dimethyloxosulphoniummethylide preparations and their synthetic applications; Organo Palladium Chemistry: Heck Reaction, Stille coupling, Suzuki coupling, Sonogashira coupling, Negeshi coupling, Wacker Oxidation; Organo copper chemistry: Gilman's reagent and synthetic applications; Synthetic applications of carbenes and carbenoids; BaylisHilman reaction.

UNIT-II

Formation of Carbon-Carbon double bonds **15 Hrs**

Stereochemistry of E1 and E2 reactions (Different examples of acyclic and cyclic molecules, Saytzeff rule, Hofmann rules and Bredt's rule); Pyrolytic Syn eliminations (focus should be given on stereochemistry of syn eliminations of amine oxides, xanthates and esters of acyclic and cyclic molecules); Sulphoxide-Sulphenate rearrangement (Mislow-Evans rearrangement); Wittig reaction, Wittig-Horner reaction and stereo chemistry of Wittig reaction; Shapiro reaction, Claisen rearrangement of allyl vinyl ethers, Julia Lythgoe olefination, Mc Murray coupling, Peterson Olefination, Tebbs reagent and its application, Metathesis: Grubbs 1st and 2nd generation catalysts, Olefin cross coupling (OCM), ring closing (RCM) and ring opening (ROM) metathesis, olefination by Nysted reagent.

UNIT-III

Reactions of Unactivated C-H bonds and organoboranes **15 Hrs**

The Hoffmann Loeffler- Freytag reaction, Barton reaction and Photolysis of organic hypothalites; Organoboranes: Preparation of Organobornaesviz hydroboration with BH_3-THF, dicylohexyl borane, disiamyl borane, theryl borane, 9- BBN mono isopinocamphlyl borane (IPCBH2) and diisopinocamphenyl borane (IPC2BH) functional group transformations of Organo boranes-Oxidation, protonolysis and isomerization. Formation of carbon-carbon-bonds vizorgano boranes carbonylation and cyanidation.

UNIT-IV

Protecting groups and Synthetic applications of PTC and crown ethers **15 Hrs**

(A)Protecting Groups 1) Protection of alcohols as ethers [methyl ether (RO-Me), Tertiary butyl ether ($ROCMe_3$) , Benzyl ethers (RO-Bn), as Silyl ethers [Trimethylsilylether (R-OTMS), tri ethyl silyl ethers (RO-TES), t-butyldimethylsilyl ether (ROTBDMS in the presence of imidazole), t-butyl diphenylsilyl ether (RO-TBDPS)], as acetals [tetrahydopyranyl ethers (RO-THP), 2) Protection of 1,2-diols by acetal, ketal and carbonate formation. 3) Protection of amines by acetylation, benzoylation, benzoyloxy carbonyl, FMOC and triphenyl methyl groups. 4) Protection of carbonyl by acetal, ketal and thioacetal (Umpolung) groups. 5) Protection of carboxylic acids by esters and ortho ester formation.
(B) Phase Transfer Catalysts: Synthetic applications of PTC and crown ethers

Textbooks and Books for Reference Books:

1) Some Modern Methods of Organic Synthesis W. Carruthers, Third & Fourth Edition, Cambridge University Press, Cambridge, 1988.
2) Modern Organic Synthesis-an introduction by George S.Zweifel and Michael H. Nantz, W. H. Freeman & company, New York.
3) Advanced Organic Synthesis, Part B-Reactions and Synthesis, Francis A. Carey and Richard J. Sudenburg, Fourth edition, Kluwer academic publishers, New York
4) Organic Synthesis, Christine Willis and Martin Willis, Oxford Chemistry primers.
5) Principles of Organic Synthesis, ROC Norman and JM Coxon, third edition, CBS, Publisher, Delhi. 6) Organic Synthesis, M. B. Smith, McGraw Hill, International Edition.
7) Organic Chemistry, Clayden, Greeves and Stuwart Warren.
8) Guide Book to Organic Synthesis (3rd edition), R. Mackie, D. M. Smith and Aitken. 9) Organo Boranes and Silanes, Thomson, Oxford Chemistry primers.
10) Strategic applications of named reactions in organic synthesis, Laszlo Kurti and Barbara Czako. 11) Modern Synthetic Reactions, Herbet O. House, Second Edition, W.A. Benzamine Inc. Menio Park, California, 1972.
12) Organic Synthesis viz Boranes, Herbet C. Brown Gray, W. Kramer Alan B. Levy and M. Mark Midland John Wiely &. Sons, New York, 1975.
13) Organic Synthesis: Special Techniques, V. K. Ahluwalia and Renu Agarwal.
14) Organic Synthesis, Jagadamba Singh and Dr. A. Yadav, Pragati Edition.

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
THIRD SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – IV : CHEMISTRY OF NATURAL PRODUCTS -I

UNIT–I**:**

Alkaloids 15 Hrs

Introduction, isolation, general methods of structure elucidation and physiological action, classification based on nitrogen heterocyclic ring, structure, stereochemistry, synthesis and biosynthesis of morphine, strychnine, colchicine and reserpine.

UNIT–II**:**

Terpenoids 15 Hrs

Occurrence, isolation, general methods of structure determination, isoprene rule. Structure determination, stereochemistry, biosynthesis and synthesis of Farnesol, Zingiberene, Forskolin, Taxol, Azadirachtin and β-amyrin.

UNIT–III**:**

Steroids 15 Hrs

Occurrence, nomenclature, basic skeleton, Diel's hydrocarbon and its stereochemistry. Isolation, structure determination and synthesis of cholesterol (total synthesis not expected), androsterone, testosterone and progesterone.

UNIT–IV**:**

Flavonoids and Isoflavonoids 15 Hrs

Occurrence, nomenclature and general methods of structure determination, Isolation, structure elucidation and synthesis of Kaempferol, Quercetin, Cyanidin, Genestein, Butein and Daidzein. Biosynthesis of flavonoids and Isoflavonoids.

Books Suggested:

1. Natural Products: Chemistry and Biological Significance, J. Mann, R.S.Davidson, J. B. Hobbs, D. V. Banthrope and J. B. Hatrbnome, Longman, Essex.
2. Organic Chemistry, Vol. 2, I. L. Finar, ELBS.
3. Chemistry of Organic Natural Products, O. P. Agrawal, Vols. 1 &2, Goel Pubs.
4. Natural Products Chemistry K. B. G. torssell, John Wiley, 1983
5. New Trends in Natural Products Chemistry, Atta-ur-Rahman and M.I.Choudhary, Harwood Academic Publisher.
6. Chemistry of Natural products P. S. Kalsi, Kalyani Publishers
7. Biosynthesis of steroids, terpenes and acetogenins, J. H. Richards & J. R. Hendrieson
8. The biosynthesis of secondary metabolites, R. D. Herbert, Chapman & Hall
9. The Biosynthesis of Secondary Metabolite, R. D. Herbert, Second edn, Chapman and Hall 1984
10. Chemical aspects of Biosynthesis, John Mann, Oxford University Press, Oxford, 1996.

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FOURTH SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – I : ORGANIC REACTION MECHANISMS-II & ORGANIC PHOTO CHEMISTRY

UNIT – I 15 Hrs

A) **Free Radical Reactions**:

Neighboring group assistance in free radical reactions; Reactivity for aliphatic substrates; Reactivity in aromatic substrates; Reactivity at bridge head; Allylic halogenations using NBS (Wohl – Ziegler bromination); Hydroxylation at aromatic carbon by Fentons reagent; Oxidation of aldehydes to carboxylic acids; Formation of cyclic ethers using Leadtetraacetate; Formation of hydroperoxides (autooxidation); Coupling of alkynes (Eglinton reaction and Glacer reaction);Arylation of Aromatic compounds by diazoinum salts(Gomberg – Bachman reaction); Mechanisms of Sandmeyer reaction, Hunsdiecker reaction, Reed reaction.

B) **Rearrangements:** Wagner – Meerwein Rearrangement, Demyanov Rearrangement, Wittig Rearrangement and Stevens Rearrangement

UNIT– II: 15 Hrs

Methodologies in asymmetric synthesis

Strategies in Asymmetric Synthesis: l. Chiral substrate controlled, 2. Chiral reagent controlled and 3. Chiral catalyst controlled.

1**. Chiral Substrate controlled asymmetric synthesis**: Nucleophilic additions to chiral carbonyl compounds. 1, 2-asymmetric induction, Cram's rule and Felkin-Anh model.

2. **Chiral reagent controlled asymmetric synthesis**: Asymmetric reductions using BINAL-H. Asymmetric hydroboration using IPC2 BH and IPCBH2.

3. **Chiral catalyst controlled asymmetric synthesis**: Sharpless and Jacobsen asymmetric epoxidations. Sharpless asymmetric dihydroxylation. Asymmetric hydrogenations using chiral Wilkinson biphosphine and Noyori catalys. Enzyme mediated enantioselective synthesis.

UNIT – III 15 Hrs

Photo Chemistry-I

Photochemical energy, Frank Condon Principle, Types of Electronic Excitation and Molecular orbital view of excitation, Jablonski Diagram, singlet and triplet states, photosensitization, quenching, quantum efficiency and quantum yield.

Photo Chemistry of Carbonyl Compounds: Norrish Type I reaction (alpha cleavage reaction), Norrish Type – II reaction, Paterno- Buchi reaction , Photo reduction & photo enolisation; photochemical Oxidations [Backstrom mechanism],Photo oxidation of alkenes with singlet oxygen.

UNIT – IV

Photochemistry-II

Di – Pi methane Rearrangement, Oxa di – Pi methane rearrangement; Aza di – Pi methane rearrangement; Photochemistry of Benzene and substituted benzene, 1, 2 , 1,3 ,& 1, 4-additions; Photo Fries rearrangement of Phenolic acetates and Anilides; Photochemistry of unsaturated systems, Cis- Trans Isomerisation of alkenes (Direct and sensitized) (Photoisomerisation of Stilbene), Photochemistry of Butadiene; Dimerisations of alkenes, Intramolecular dimerisation.

Photochemical rearrangement of Cyclohexadienenones; Photochemistry of alpha, beta Unsaturated ketones (dimerisations and addition across the double bond); Photochemical rearrangement reactions of Cyclohexenone, Photorearrangements of Beta, gamma unsaturated systems (Mechanism of 1,2 & 1,3 – acyl shifts); Photochemistry of Nitrite esters (Barton reaction).

Text Books and Reference Books:

1) Advanced Organic Chemistry: Reactions Mechanisms and Structure by Jerry March, Mc.Graw Hill and Kogakush.
2) Molecular reactions and Photochemistry by Charles Dupey and O. Chapman, Prentice Hall.
3) Mechanisms and Theory in Organic Chemistry by T.H. Lowery and K.S. Rich gardson.
4) The modern structural theory in Organic Chemistry by L.N.Ferguson, Pretice Hall
5) Physical Organic Chemistry by jack Hine, Mc. Graw Hill
6) Advanced Organic Synthesis, Part B-Reactions and Synthesis, Francis A. Carey and Richard J. Sudenburg, Fourth edition, Kluwer academic publishers, New York
7) Organic Synthesis, Christine Willis and Martin Willis, Oxford Chemistry primers.
8) Principles of Organic Synthesis, ROC Norman and JM Coxon, third edition, CBS, Publisher, Delhi.
9) Organic Synthesis, M. B. Smith, Mc Graw Hill, International Edition.
10) Organic Chemistry, Clayden, Greeves and Stuwart Warren.
11) Modern Organic Synthesis-an introduction by George S.Zweifel and Michael H. Nantz, W. H. Freeman & company, New York.
12) Organic Photochemistry by D Coyle
13) Molecular Photochemistry by Gilbert & Baggo
14) Organic Photochemistry by Turro
15) Photochemistry by C W J Wells

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FOURTH SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – I : ORGANIC SPECTROSCOPY- II

UNIT-I:

A) **Optical Rotatory Dispersion (ORD) and CD spectroscopy**: Optical Rotation, Circular birefringence, Circular dichroism and Cotton effect. Plane curves and Anomalous curves. Empirical and Semi empirical rules – The axial halo ketone rule, the Octant rule and Helicity rule. Application of the rules to the study of absolute configuration and confirmations of organic molecules.

UNIT-II

A) Improving the PMR spectrum: Chemical and Magnetic Equvalence. Chemical exchange, First and Non-First Order Spectra and analysis of AB, AMX and ABX systems.

B) Simplification of complex spectra-: Nuclear Magnetic double resonance, Lanthanide shift reagents, solvent effects, Fourier transforms technique, Nuclear Overhauser Effect (NOE), Deuterium Exchange, spectra at higherfields. Hindered Rotations and Rate processes. Resonance of other nuclei-^{19}F and^{31} P

C) 2D NMR spectroscopy: Definitions and importance of COSY, DEPT, HOMCOR, HETCOR, INADEQUATE, INDOR INEPT, NOESY.

UNIT-III

Solution of structural problems by joint application of UV, IR, NMR (1H&13C) and mass spectrometry.

UNIT-IV

A) Separation Techniques: Solvent extraction chromatography-paper-thin layer partition-column chromatography, Electrophoresis.
B) Instrumentation – Gas Chromatography, High performance Liquid Chromatography, X – Ray diffraction (XRD)

Suggested Books:

1) Spectroscopic Methods in Organic Chemistry- Forth Edition, D.H. Williams and I. Fleming Tata – McGraw Hill, New Delhi, 1990.
2) Organic Spectroscopy- Second Edition, W.Kemp, ELBS Macmillan, 1987.
3) Spectrometric identification of Organic Compounds-Fourth Edition, R.M. Silverstein: G.C.Vassiellr and T.C. Merill, Johne Willey, Singapore, 1981.
4) Introduction to spectroscopy-D.L.Pavia, G.M.Lampman, G.S.Kriz, 3rdEd (Harcourt college publishers).
5) "Applications of Optical rotation and Circular Dichroism", G.C. Barret, in "Elucidation of Organic structures by Physical and Chemical Methods" Part I (Eds) K.W. Bentley and G.W.Rirty John Wiley, 1972, Chapter VIII (only those aspects mentioned in the syllabus).
6) Instrumental methods of chemical analysis by H.Kaur, Pragati Prakasan,meerut.
7) Separation Techniques by M.N.Sastri, Himalaya publishing House (HPH), Mumbai.

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FOURTH SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – III : MODERN ORGANIC SYNTHESIS -II

UNIT-I

Organo Silanes **15 Hrs**

Synthetic applications of trimethylsilyl chloride dimethyl-t-butylsilyl chloride, trimetthylsilyl cyanide, trimethylsilyl iodide and trimethylsilyl triflate, synthetic applications of α-silyl carbanion and β-silyl carbonium ions. Synthetic applications of silyl enol ethers, Preparation and synthetic applications of alkynyl silanes, aryl silanes, allyl silanes and vinyl silanes, Nazarov cyclization, Synthetic conversion of α, β-epoxy silanes, Peterson Olefination, Brook rearrangement and Rubottom oxidation.

UNIT-II

Oxidation **15 Hrs**

Synthetic applications of the following reagents in the oxidation of functional groups like alkenes, alkynes, alcohols, aldehydes and ketones: 1) $Pb(OAC)_4$ 2) HIO_4 3) SeO_2 4) Collins reagent, Jones reagent, PCC (Coreys reagent), PDC, Babler oxidation) 4) MnO_2 5) $KMnO_4$ 6) OsO_4 7) Swern oxidation, 8) Oxidations by using IBX, TEMPO 9) Bayer villager oxidation 10) Oxidation of alkenes using Woodward and Prevost rteagents 11) Oxidation by using DDQ 12) Sharpless asymmetric epoxidation and sharpless asymmetric dihydroxylation 13) Thallium nitrate

UNIT-III

Reduction **15 Hrs**

(1) Catalytic reductions: Homogeneous (Wilkinson's Catalytic reduction) and heterogeneous catalytic reductions and their synthetic applications. (2) Reductions by using electrophilic nucleophilic metal hydrides: $LiAlH_4$ (Various examples of reductions and cram's rule), related reagents of LAH, $NaBH_4$, $NaBH_3CN$, Trialkyl Borohydrides (Super Hydride and Selectride). (3) Reductions by using electrophilic metal hydrides: BH_3, DIBAL

(4) Reductions by dissolving metals: Clemenson reduction, Acyloin condensation, Bouveault-Blanc reduction, Birch reduction (Various examples should be discussed). (5) Reductions by using Diimide and Wolf-Kishner Reduction (6) Reductions by using tri n-butyl tin hydride.

UNIT-IV

Retro Synthetic Analysis **15 Hrs**

1. Basic definitions of the following: a) Retro synthetic analysis b) Disconnection c) Target molecule d) Synthon e) Synthetic equivalent f) Functional Group Inter Conversion (FGI) g) Functional Group Addition (FGA)

2. Guidelines for the order of events: One Group C-X disconnections (Carbonyl derivatives, ethers, sulphides and alcohols); Two group C-X disconnections (1,1-difunctionalised, 1,2-difunctionalised and 1,3-difunctionalised compounds), One group C-C disconnections (Alcohols and carbonyl compounds, 1,1- C-C, 1,2-C-C and 1,3-C-C).

Linear and convergent synthesis.

Textbooks and Books for Reference:

1) Some Modern Methods of Organic Synthesis W. Carothers, Third Edition, Cambridge University Press, Cambridge, 1988.
2) Modern Organic Synthesis-an introduction by George S.Zweifel and Michael H. Nantz, W. H. Freeman & company, New York.
3) Advanced Organic Synthesis, Part B-Reactions and Synthesis, Francis A. Carey and Richard J. Sudenburg, Fourt edition, Kluwer academic publishers, New York.
4) Organic Synthesis, Christine Willis and Martin Willis, Oxford Chemistry primers.
5) Principles of Organic Synthesis, ROC Norman and JM Coxon, third edition, CBS, Publisher, Delhi.
6) Organic Synthesis, M. B. Smith, McGraw Hill, International Edition.
7) Organic Chemistry, Clayden, Greeves and Stuwart Warren.
8) Guide Book to Organic Synthesis (3rd edition), R. Mackie, D. M. Smith and Aitken.
9) Organo Boranes and Silanes, Thomson, Oxford Chemistry primers.
10) Strategic applications of named reactions in organic synthesis, Laszlo Kurti and Barbara Czako.
11) Organic Synthesis: The disconnection approach, S. Warrant John Wiley & sons, New York, 1984.
12) Modern Synthetic Reactions, Herbet O. Horase, Second Edition, W.A. Benzamine Inc. Menio Park, California, 1972.

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
FOURTH SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

Paper – IV : BIO-ORGANIC CHEMISTRY

UNIT-I 15 Hours

Biopolymers and Enzymes

Peptides: α-Amino acids, their general properties and synthesis, Synthesis of peptides by Merrified solid phase synthesis. Chemistry of oxytocin and dolastain-10
Enzymes-Oxidoreductases, hydrolases, transferases, synthesis of ATP, Baker's Yeast. Enzyme models.

UNIT-II 15 Hours

Antimalarials & Antibiotics
i. Antimalarials: Chemotherapy, synthesis and activity of antimalarial drugs- quinoline group-quinine, acridine group-quinacrine and guanidine group-paludrine.
ii. Antibiotics: General characteristics, structure- activity relationships, synthesis and activity of antibiotics: Pencillin G, Cephalosphorin-C and streptomycin.

UNIT-III 15 Hours

Vitamins
Definition, occurence, structural formulae, physiological functions and synthesis of Vitamins.

Vitamins: Structure determination and synthesis of Retinol (A), Thiamine (B_1), Riboflavin (B_2), Pyridoxine (B_6) and Biotins (H), Nicotininc acid.

UNIT-IV 15 Hours

Nucleic Acids:
Nucleic acids: Basic concepts of the structures of RNA and DNA and their hydrolysis products, nucleotides, nucleosides and heterocyclic bases, Genetic Code, Finger Print test.
Application of recombinant DNA technology in production of pharmaceuticals, diagnosis of diseases, insect control, improved biological detergents, gene therapy-examples.

Reference Books and Material:

1. Chemical Aspects of Biosynthesis, John Man, Oxford University Press, Oxford, 1996.
2. Chemistry of Natural Products: A Unified Approach, N. R. Krishnaswamy, University Press (India) Ltd., Orient Longman Limited, Hyderabad, 1999.
3. Introduction to Organic Chemistry, A Streitweiser, CH Heathcock and E.M./Kosover IV Edition, Mc.Millan, 1992. (For Merrifield synthesis of peptides and also for other aspects of Unit IV)
4. Bio-organic Chemistry, H.Dugas and C. Penney, springer, New York, 1981.
5. Details of Primary literature: Nomenclature: Structure: Dolastatin-10: JACS, 1987, 109, 6883 (structure), ibdi, 1989, 111, 5463, JCS, Parkin I, 1996, 859 (synthesis).

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ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
PRACTICAL SYLLABUS
(With Effective from 2019-20 admitted batch)

III SEMESTER
Laboratory Course-1

100 M

Multistep Synthesis of Organic Compounds:

The experiments should illustrate the use of organic reagents and may involve purification of the products by chromatographic techniques.

1. Beckmann rearrangement: Benzanilide from Benzophenone
Benzophenone → Blenzophenone oxime → Benzanilide

2. Benzilic acid rearrangement: Benzilic acid from benzoin
Benzoin → Benzil → Benzilic acid

3. P-Bromo Aniline from Aniline :
Aniline → Acetanilide → P-Bromo Acetanilide → P-Bromo Aniline

4. Symmetrical Tribromo Benzene from aniline:
Aniline → Tribromoaniline→Tribromobenzene

5. 2,4,6-trimethylquinoline from p-toluidine
p-toluidne→ 4-(p-tolylamino) pent-3-ene-2-one → 2,4,6-trimethylquinoline

6. Flavone from o-hydroxy acetophenone
o-hydroxy acetophenone → o-benzoyl acetophenone → o-hydroxy- dibenzoylmethane →
Flavone

7. 2-phenylindole from phenylhydrazine
phenylhydrazine →acetophenone phenylhydrazone→ 2-phenylindole

Laboratory Course-2

Estimations and Chromatography **100 M**

1. Estimation of (a) Glucose (b) Phenol (c) Aniline (d) Acetone (e) Aspirin (f) Ibuprofen (g) Paracetamol
2. Separation by column chromatography: Separation of a mixture of *ortho* and *para* nitroanilines using silicagel as adsorbent and chloroform as the eluent. The column chromatography should be monitored by TLC.

Books Suggested

1. Modern Organic Synthesis in the Laboratory *A Collection of Standard Experimental Procedures*, Jie Jack Li, Chris Limberakis, Derek A. Pflum
2. Practical organic chemistry by Mann & Saunders
3. Text book of practical organic chemistry by Vogel
4. Text book of practical organic chemistry including qualitative organic analysis by A.I. Vogel (Longman)

ADIKAVI NANNAYA UNIVERSITY
DEPARTMENT OF CHEMISTRY
THIRD SEMESTER- SYLLABUS
(With Effective from 2019-20 admitted batch)

IV SEMESTER
Laboratory Course-1

100 M

Chromatographic Separation and Isolation & identification of Natural Products

1. Thin layer chromatography: Determination of purity of a given sample, monitoring the progress of chemical reactions, identification of unknown organic compounds by comparing the Rf values of known standards.
2. Isolation and identification of Natural Products

(a) Isolation of caffeine from tea leaves
(b) Isolation of euginol from cloves
(c) Isolation of casein and lactose from milk
(d) Isolation of limonene from lemon peel
(e) Isolation of piperines from black pepper
(f) Isolation of lycopene from tomatoes
(g) Isolation of β-carotene from carrots

Laboratory Course-2 **100 M**

Spectral Identification of Organic Compounds (UV, IR, ^{1}H- NMR, ^{13}C- NMR and MASS).

A minimum of 40 representative examples should be studied

Books Suggested:

1. Ikan, R. *Natural Products, A Laboratory Guide*, 2nd ed.; Academic Press: New York, 1991.
2. Adapted from *Introduction to Organic Laboratory Techniques: A Microscale Approach*. Pavia, Lampman, Kriz and Engel. (1999) Saunders College Publishing.
3. Pharmaceutical drug analysis by Ashutoshkar
4. Quantitative analysis of drugs in pharmaceutical formulations by P D Sethi
5. Practical pharmaceutical chemistry part-1 and part-2 by A H Beekett and J B Stenlake
6. Practical organic chemistry by Mann & Saunders.
7. Spectrometric Identification of organic compounds, R.M. Silverstein, F.X. Webster and D.J. Kiemle, 7th Ed., (Wiley).