

SYLLABUS FOR THE BATCH FROM YEAR 2021 TO YEAR 2024

B.A. / B.Sc.
(12+3 SYSTEM OF EDUCATION)
(Semester: III)

Examinations: 2021-24



**GURU NANAK DEV UNIVERSITY
AMRITSAR**

**Note: (i) Copy rights are reserved.
Nobody is allowed to print it in any form.
Defaulters will be prosecuted.**

**(ii) Subject to change in the syllabi at any time.
Please visit the University website time to time.**

INDEX OF SEMESTER-III

Sr.No.	Subject	Page No.
	FACULTY OF ARTS & SOCIAL SCIENCES	
1.	Political Science	5-6
2.	History	7-8
3.	Journalism and Mass Communication (Vocational)	9-10
4.	Mass Communication and Video Production (Vocational)	11-12
5.	Sociology	13-14
6.	Psychology	15-16
7.	Defence and Strategic Studies	17-20
8.	Geography	21-24
9.	Public Administration	25
10.	Women Empowerment	26
11.	Punjab History & Culture (Special Paper in Lieu of Punjabi Compulory) (For those Students who are not domicile of Punjab)	27
	FACULTY OF ECONOMICS & BUSINESS	
12.	Economics	28
13.	Industrial Economics	29
14.	Quantitative Techniques	30
15.	Agricultural Economics and Marketing	31
16.	Rural Development	32
17.	Office Management and Secretarial Practice (Vocational)	33-34
18.	Travel and Tourism	35
19.	Tourism and Hotel Management (Vocational)	36
20.	Tax Procedure and Practice (Vocational)	37-38

21.	Advertising Sales Promotion and Sales Management (Vocational)	39-40
22.	Commerce	41-42
23.	Tourism and Travel Management (Vocational)	43
	FACULTY OF SCIENCES	
24.	Mathematics	44-45
25.	Statistics	46-48
26.	Chemistry	49-53
27.	Physics	54-58
28.	Home Science	59-61
29.	Cosmetology (Vocational)	62-63
30.	Clinical Nutrition and Dietetics (Vocational)	64-68
31.	Fashion Designing and Garment Construction (Vocational)	69-70
32.	Early Childhood Care and Education (Vocational)	71-72
33.	Food Science and Quality Control (Vocational)	73-75
	FACULTY OF VISUAL ARTS & PERFORMING ARTS	
34.	Fine Art	76-78
35.	Gemology and Jewellery Design (Vocational)	79-81
36.	Still Photography and Audio Production (Vocational)	82-83
37.	Applied Art	84-85
38.	Sculpture	86-87
39.	Music (Vocal)	88-90
40.	Music (Instrumental)	91-92
41.	Indian Classical Dance	93-95
42.	Tabla	96-98

	FACULTY OF ENGINEERING & TECHNOLOGY	
43.	Computer Science	99-100
44.	Information Technology (Vocational)	101-102
45.	Computer Maintenance (Vocational)	103-105
46.	Computer Applications (Vocational)	106-108
47.	Automobile Maintenance (Vocational)	109-111
48.	Refrigeration & Air Conditioning (Vocational)	112-114
49.	Information Technology Specialization Software Development (Vocational)	115
	FACULTY OF HUMANITIES & RELIGIOUS STUDIES	
50.	Religious Studies (ਧਰਮ ਅਧਿਐਨ)	116-117
51.	Philosophy	118-121
	FACULTY OF LIFE SCIENCES	
52.	Zoology	122-128
53.	Botany	129-131
54.	Environmental Studies (Compulsory)	132-135
55.	Microbiology	136-137
56.	Bioinformatics (Vocational)	138-140
57.	Biotechnology (Vocational)	141-142
	FACULTY OF EDUCATION	
58.	Education	143
59.	Human Rights	144-145
	FACULTY OF AGRICULTURE & FORESTRY	
60.	Dairy Farming (Vocational)	146-147

	FACULTY OF LANGUAGES	
61.	Russian	148-150
62.	French	151-153
63.	Urdu	154
64.	Persian	155-156
65.	Sanskrit (Elective)	157-158
66.	Functional Sanskrit (Vocational)	159-160
67.	English (Compulsory)	161
68.	English (Elective)	162-163
69.	Functional English (Vocational)	164
70.	Punjabi (Compulsory) (ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ)	165-166
71.	Punjabi (Elective) (ਪੰਜਾਬੀ ਇਲੈਕਟਿਵ)	167-168
72.	Functional Punjabi (ਪ੍ਰਕਾਰਜੀ ਪੰਜਾਬੀ) (Vocational)	169-170
73.	ਮੁੱਢਲੀ ਪੰਜਾਬੀ (in lieu of Punjabi Compulsory)	171
74.	Hindi (Elective)	172
75.	Hindi Patrakarita (Vocational)	173-174
76.	Functional Hindi (Vocational)	175-181
	FACULTY OF PHYSICAL EDUCATION	
77.	Physical Education	182-183

(SEMESTER-III)
POLITICAL SCIENCE
INDIAN CONSTITUTION

Time: 3 Hours

Max. Marks:

100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section - A

1. **Historical Development of Indian Constitution.**
2. Basic features of the Indian Constitution.
3. Preamble and its importance.
4. Nature of Indian Federalism and Centre-State Relations.

Section - B

1. Fundamental Rights, features, kinds and evaluation.
2. Fundamental Duties.
3. Directive Principles of the State Policy.

Section - C

1. **Parliament:** Composition, Powers and Role.
2. **President:** Election, Powers and Position.
3. **Indian Cabinet and Prime Minister:** Election, Powers, Position and Changing Role.
4. **Supreme Court and High Court:** Composition, Powers and Role.

Section - D

1. **Governor:** Appointment, Powers and Role.
2. **State Legislature:** Composition, Powers and Role.
3. **Council of Ministers and Chief Minister:** Election, Powers, Position and Role.

Books Recommended:

1. G. Austin, *The Indian Constitution: Corner Stone of a Nation*, Oxford, Oxford University Press, 1966.
2. G. Austin, *Working of a Democratic Constitution: The Indian Experience*, Oxford University Press, 2000, Delhi.
3. D.D. Basu, *An Introduction to the Constitution of India*, New Delhi, Prentice Hall, 2008.
4. C.P. Bambhri, *The Indian State Fifty Years*, New Delhi, Shipra, 1997.
5. P. Brass, *Politics of India Since Independence*, Hyderabad, Orient Longman, 1990.
6. P. Brass, *Caste, Faction and Parties in Indian Politics*, Vol. II, Delhi, Chanakya Publications 1984-1985.
7. P. Brass, *Ethnic Groups and the State*, London, Croom, Helm, 1995.

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Batch 2021-24)
(Faculty of Arts & Social Sciences)

8. P. Brass, *Language, Religion and Politics in North Indian*, London, Cambridge University Press, 1974.
9. B.L. Fadia, *State Politics in India*, Vol. II, New Delhi, Radiant Publishers, 1984.
10. F.R. Frankel, *India's Political Economy 1947-1977, The Gradual Revolution*, Oxford, Oxford University Press, 1978.
11. R. Kothari, *State against Democracy: In Search of Human Governance*, Delhi, Ajanta, 1988.
12. R. Kothari, *Politics in India*, New Delhi, Orient Longman, 1970.
13. R. Kothari, *Party System and Election Studies*, Bombay, Asia Publishing House, 1967.
14. I. Narain (ed.), *State Politics in India*, Meerut, Meenakshi Parkashan, 1967.
15. M.V. Pylee, *Constitutional Government in India*, Bombay, Asia Publishing House, 1977.
16. M.V. Pylee, *An Introduction to the Consutitution of India*, New Delhi, Vikas, 1998.
17. S.P. Verma and C.P. Bhambari (ed.), *Election and Political Consciousness in India*, Meerut, Meenakshi Parkashan, 1967.
18. B.L. Fadia, *Indian Government and Politics*, Agra, Sahitya Bhavan Publications, 2008.
19. A.S. Narang, *Indian Government and Politics*, New Delhi, Gitanjali, 1999.
20. *Indian Journal of Political Sciences*
21. *Punjab Journal of Politics*
22. Seminar
23. Lloyd I. Rudolph and Susanne Hoeba Rudolph, *Explaining Indian Democracy: A Fifty-Year Perspective, 1956-2006*, Vol. I, II, III, New Delhi, OUP, 2008.
24. Francine Frankel, *India's Political Economy: 1947-2004*, New Delhi, OUP, 2006.
25. Madhav Khosla, *The Indian Constitution*, Oxford, 2012
26. Sudhir Krishnaswamy, *Democracy and Constitutionalism in India : the Study of Basic Structue*, Oxford,2011
27. P.M Bakshi, *The Constitution of India*, Universal, 2007.
28. J.C Johari, *The Constitution of India*, Sterling, 2007
29. Brij Kishore Shasma, *Introduction to the Constitution of India*, PHI, 2009

**SEMESTER–III
HISTORY**

HISTORY OF INDIA (AD 1707-1947)

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. **Foundation of British Rule:** Advent of the British; Battles of Plassey and Buxar, Clive and Warren Hastings; Subsidiary Alliance Policy, Doctrine of Lapse.
2. **The Uprising of 1857:** Causes, Spread of the Uprisings, Nature and aftermath.

SECTION–B

3. **Economic Changes:** Agriculture, British commercial policies and the impact on the trade balance; Destruction of indigenous industries; the growth of modern industry; The drain theory.
4. **Growth of Education and Political Organization:** New education; Rise of the middle classes; **Socio Religious Movements** : Brahma Samaj, Arya Samaj, Rama Krishana Mission, Prarthna Samaj, Theosophical Society, Aligarh Movement.

SECTION–C

5. **Early Political Associations and Emergence of Revolutionary Terrorism:** Early Political Association and Indian National Congress; Swadeshi Movement, Partition of Bengal and its impact; Revolutionary Terrorism in Bengal, Maharashtra and the Punjab, Impact on the National Movement.
6. **The Phase of Non-Co-operation** : Emergence of Gandhi; The Jallianwala Bagh Massacre and its impact; Khilafat agitation; the Non-cooperation Movement; Withdrawal and impact; the Swarajists; The Simon Commission; **The Phase of Civil Disobedience** : The programme and the course of the Civil Disobedience Movement, the Round Table Conferences; Communal Award; Poona-pact; Withdrawal of Civil Disobedience Movement

SECTION–D

7. **Constitutional Development:** The Minto-Morley Reforms of 1909, The Act of 1919 and Dyarchy; Government of India Act, 1935 and Provincial Autonomy.
8. **Towards Partition and Independence:** Growth of communal politics; Lahore resolution, Cripps proposals; Quit India Movement; the INA Trials; Cabinet Mission and towards Independence.

Suggested Reading:

1. Bipan Chandra, *History of Modern India*, Orient Longman, Hyderabad, 2009.
2. Sarkar, Sumit, *Modern India (1885-1947)*, Orient Longman, New Delhi, 1983.
3. Bose, Sugata and Ayesha Jalal, *Modern South Asia: History, Culture, Political Economy*, OUP, New Delhi, 2004.
4. Bandyopadhyay, Sekhar, *From Plassey to Partition: A History of Modern India*, Orient Longman, Hyderabad, 2004.
5. Datta, Kali Kinkar, *A Social History of Modern India*, Macmillan, New Delhi, 1975.
6. Bannerjee, A.C., *The New History of Modern India (1707-1947)*, K.P.Bagchi, Calcutta, 1983.
7. Burton, Stein, *A History of India*, OUP, New Delhi, 2003.
8. Desai, A.R., *Social Background of Indian Nationalism*, Popular Prakashan, Bombay, 1966.
9. Misra, B.B., *The Indian Middle Classes: Their Growth in Modern Times*, OUP, London, 1978
10. Jones, Kenneth, *Socio-Religious Movements in India*, CUP, Cambridge, New Delhi, 1989.
11. Chopra, P.N. et al, *A Social, Cultural and Economic History of India: Modern India*, Vol. III, Macmillan, New Delhi, 1974.
12. Chaudhuri, M.K., (ed.), *Trends of Socio-Economic Change in India (1871-1961)*, IAS, Simla, 1969.
13. Choudhary, Sukhbir, *Peasants' and Workers' Movements in India, 1905-1929*, PPH, New Delhi, 1971.

SEMESTER–III
JOURNALISM AND MASS COMMUNICATION (VOCATIONAL)

WRITING FOR PRINT MEDIA
(THEORY)

Time: 3 Hours

Max Marks: 100
Theory Marks: 80
Practical Marks: 20

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

News: Writing a news story; chronological, logical and inverted pyramid styles, Headlines: Types of headlines. Leads; Types of leads, Sources of News, Elements of News

SECTION-B

Organisational setup of a news paper office; Role of editor, a sub-editor and news editor, How to produce a news paper, How to get a news paper registered

SECTION-C

Qualities of a journalist, Functions of the Press, Printing Process
New Technology in Print Media, Editing the news story: editing symbols

SECTION-D

Various departments of a newspaper office and their hierarchy, Middles, Editorial, columns and letter to editor, Web Journalism

SEMESTER–III
JOURNALISM AND MASS COMMUNICATION (VOCATIONAL)

WRITING FOR PRINT MEDIA
(PRACTICAL)

Marks : 20

Writing news stories in various news writing styles
Writing features and articles
Writing letter to editor and getting it published

Books Recommended:-

1. Newspaper Editing: K.M. Srivastava, Sterling Publishers Pvt. Ltd. (1987).
2. Newspaper Management: Golab Kothari, Intercultural Open University (1995).

SEMESTER-III
MASS COMMUNICATIONS & VIDEO PRODUCTION (VOCATIONAL)

SOUND & SCRIPT WRITING FOR MEDIA
(THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 80
Practical Marks: 20

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Question Paper will be set in English only but the medium of examination will be English, Punjabi and Hindi.

SECTION-A

Sound: Meaning, Characteristics, Propagation, Acoustic Reverberation

SECTION-B

Microphones: Selection of Microphones, Types of Microphones

SECTION-C

MAGNETIC RECORDING PRINCIPLES

Audio Cables & Connectors (Types & Uses), Noise & Distortion, Dope Sheet/Exposure Sheet
Sound Recordist's role in production crew, Audio console

SECTION-D

Script Writing: Basics, Elements of Good Script Writing, Role of Writer, Structure of Script
Subject Research (Idea, Visualisation & Script Sources of Information), Formats of Script
Writing, Story Board

SEMESTER–III

MASS COMMUNICATIONS & VIDEO PRODUCTION (VOCATIONAL)

(PRACTICAL)

Marks: 20

Writing script for various radio formats.

Visit to sound recording studio.

Practical acquaintance with sound equipments.

Books Recommended

- | | | |
|---|---------------|--------------------------------------|
| 1. Writing scripts for TV Radio and Film, | Willis, Edgor | Chicago, Halt and
Rinchart. 1981. |
| 2. Basics of Video Sound | Das Lyver | Focal Press |

Note: Practicals to be conducted by External Examiner.

**SEMESTER–III
SOCIOLOGY**

SOCIETY IN INDIA

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

- (a) **Indian Society:** Features and Unity in Diversity.
(b) **Caste:** Features, Functions, Changing patterns, Difference between caste and class.

SECTION–B

- (a) **Social Issues:** Communalism, Casteism, Gender, Human Rights.

SECTION–C

- (a) **Marriage:** Meaning, Types, Functions and Changes.
(b) **Family:** Meaning, Types, Functions and Changes.
(c) **Kinship:** Meaning and Terminology.

SECTION–D

- (a) **Society in India:** Rural, Urban and Tribal.

Recommended Books:

1. Abraham, M. Francis: *Contemporary Sociology*, Oxford University, New Delhi, 2006.
2. Ahuja, Ram. 1999, *Society in India*. Jaipur: Rawat.
3. Atal, Yogesh. 2006, *Changing Indian Society*. Jaipur: Rawat.
4. Ghurye, G.S.: *Caste & Race in India*, Popular, Bombay, Punjabi Translations by N.S. Sodhi, Panjabi University, Patiala, 1962.
5. Hutton, J.H.: *Caste in India—Its Nature, Functions and Origin*, Oxford University Press, Delhi 1980.
6. Jayaraman, Raja: *Caste & Class, Dynamics of Inequality in Indian Society*, Hindustan Publishing Corporation, 1981.

7. Kapadia, K.M.: *Marriage and Family in India*, Oxford University Press, Calcutta, 1996.
8. Kapila, S: *A Textbook of Sociology*, Part-I & II, New Academic House, Jalandhar, 1990-91.
9. Kothari, Rajni (ed): *Caste in Indian Politics*, Orient Longman, Delhi, 1973.
10. Mandelbaum, David G.: *Society in India*, Popular Prakashan, Bomaby, 1972.
11. Mukerji, D.P.: *Diversities: Essays in Economics, Sociology and Social Problems*, Manak, New Delhi, 2002.
12. Maclver, R.M. & Page, Charles H.: *Society- An Introductory Analysis*, Macmillan, London, 1974.
13. Sharma, K.L. 2007, *Indian Social Structure and Change*. Jaipur: Rawat.

SEMESTER–III**PSYCHOLOGY****BIOLOGICAL BASIS OF BEHAVIOUR
(THEORY)**

Time: 3 Hours
Pass Marks: 35%
(Theory and Practical Separately)

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A**Neurons & Synapses:**

Neurons: Structure and Functions

Synapses: Synapse and Types of Synapse, Resting and Action Potentials

SECTION–B

Nervous System (Central, Peripheral and Autonomic)

SECTION–C

Structure and Functions of Visual, Auditory, Olfactory, Gustatory and Somato-sensory Systems

SECTION–D

Normal Probability Curve, Concept, Nature and Characteristics (Numericals of Areas under NPC only)

References:

1. D'Amato, M.R.: Experimental Psychology: Methodology Psychophysics and Learning, McGraw Hill Company, New Delhi, 1970.
2. Postman, L and Egan, J.P.: Experimental, Psychology, Harper and Row, New York.
3. Woodworth, R.S. and Schlosberg, H.: Experimental Psychology, New York; Holt, Rinehart and Winston Inc. 1954.
4. Galotti, K.M. (2007): Cognitive Psychology in and Out of the Laboratory, Thomson Wads Worth.

**SEMESTER–III
PSYCHOLOGY**

(PRACTICAL)

Marks: 25

Instructions for the Practical Examination:

Students are supposed to perform five practicals out of 6 mentioned in the syllabus. Practical examination will be of 3 hours duration. External Examiner will conduct the practical examination. The students will perform one practical in the exam carrying 25 marks. Evaluation of the practical would be done on the basis of write-up of file book (5 Marks), performance and viva-voce (20 Marks) relating to the practicals. In case students have not completed 5 practicals, the examiner will deduct marks at the rate of 5 for each left practical out of total evaluation of the student. No reappear will be allowed in the practical examination. Fail in the practical will be considered fail overall in the subject.

Five Practical have to be performed out of the following:

1. Positive Transfer in Sensory Motor Learning
2. Negative Transfer in Sensory Motor Learning
3. Comparative Study of Sensory and Muscular Reaction Time
4. Effect of Fatigue on Mental Work
5. Comparative Study of RL for the Two Parts of the Body
6. Any Practical related with Biological aspects of Behaviour

SEMESTER–III
DEFENCE AND STRATEGIC STUDIES

EVOLUTION OF WARFARE OUTSIDE INDIA
(THEORY)

Time: 3 Hours

Max .Marks: 100

Theory Marks: 80

Practical Marks: 20

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: *Practicals are only meant for the regular students. For the private students the paper shall be 100 marks. For private students, each question will be 20 marks.*

SECTION–A

1. **Military Organisations and techniques of fighting of Macedonians and Persians with particular reference to the Battle of Arbela, 331 B.C.**
 - (a) Military organisations of Macedonians and Persians.
 - (b) Battle of Arbela
 - (i) Introduction
 - (ii) Opposing forces and their deployment.

2. **Military organizations and techniques of fighting of Romans and Carthaginians with particular reference to the Battle of Cannae 216 B.C.:**
 - (a) Military organisations of Romans and Carthaginians.
 - (b) Battle of Cannae
 - (i) Introduction
 - (ii) Opposing forces and their deployment.
 - (iii) Description of the battle.
 - (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

3. **Military organizations and techniques of fighting of Romans and Barbarians with particular reference to the Battle of Adrianople 378. A.D. : Military organizations and techniques of fighting of Romans and Barbarians.**
 - (a) Military organisations of Romans and Barbarians.
 - (b) Battle of Adrianople
 - (i) Introduction
 - (ii) Opposing forces and their deployment.

- (iii) Description of the battle.
- (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

SECTION-B

4. Military organizations and techniques of fighting of the English and Romans with particular reference to the Battle of Hastings 1066 AD. :

- a) Military organisation of the English and Romans.
- b) Battle of Hastings
 - (i) Introduction
 - (ii) Opposing forces and their deployment.
 - (iii) Description of the battle.
 - (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

5. The Mongol art of war under Chingiz Khan and Taimur

- a) Organisation of Mongol Army.
- b) Mongol Art of War.

SECTION-C

6. Industrial Revolution and its impact

- a) Impact on Society
- b) Impact on weapons for land and naval warfare
- c) Impact on means of communications
- d) Impact on tactics for land and naval warfare.

7. Napoleonic Warfare

- a) Elements of Napoleonic Warfare.
- b) Principles of Napoleonic Warfare.

SECTION-D

8. Naval Warfare with particular reference to the Battle of Trafalgar 1805 A.D. :

- a) Background of the English and Franco-Spanish rivalry for naval supremacy.
- b) Battle of Trafalgar.
 - (i) Opposing forces and their deployment.
 - (ii) Description of the battle.
 - (iii) Analysis (strategy, tactics, application of principles of War and causes of defeat and victory).

9. American Civil War (1861-65)

- i) Introduction
- ii) Causes
- iii) Events in brief
- iv) The Character of the Civil War
- v) Tactical development

SUGGESTED READINGS:

1. Das, S.T. (1970) An Introduction to the Art of War , Sagar Publishers, New Delhi.
2. Dupuy, R.Earnest (1970) The Encyclopedia of Military History, MacDonal, London.
3. Fuller, J.F.C. (1960) Conduct of War, Army Publishers, New Delhi.
4. Fuller, J.F.C. (1959) The American Civil War, Natraj Publishers, Dehradun.
5. Fuller, J.F.C. (1958) The Generalship of Alexander The Great, Natraj Publishers, Dehradun.
6. Fuller, J.F.C. (1971) Armament and History, Sagar Publishers, New Delhi.
7. Fuller, J.F.C. (1954) The Decisive Battle of the Western World Vol.I & II, Eyre and Spottiswoode, London.
8. Montgomery, Viscount (1968) A History of Warfare, William Collins, London.
9. Ropp, Theodore (2000) War in the Modern World, The John Hopkins University Press Baltimore.
10. Sarkar, J.N. (1960) Military History of India, M.C, Sarkar, Calcutta.
11. Sheppard, E.W. (1966) The Study of Military History, Natraj Publishers, New Delhi.

SEMESTER–III
DEFENCE AND STRATEGIC STUDIES

(PRACTICAL)

Time: 3 Hrs.

Marks: 20

Written: 10

Discussion: 05

Record & Viva-Voce: 05

Instructions for the Examiners:

1. Examiners are required to set a question paper containing 10 marks of 1 hour duration in which he is supposed to set at least 3 questions of 5 marks each and students are required to attempt any two.
2. In the written practical Examination, choice in questions may be given to the students. The question paper is to be set at least half an hour before the examination.
3. Each student should be asked to deliver a talk/make short presentation for 5–10 minutes on any of the given topics.
4. Examiners should devote reasonable time for Viva–Voce Test and assess the practical record of a student.
5. For practical paper one group of Students will not comprise of more than 20 students at a time.

A. WRITTEN TEST

Marks: 10

1. Liquid Prismatic Compass (LPC): Features and functions of its various parts.

Attempt following exercise on the LPC:

- a. To determine magnetic north.
 - b. Setting of the Map.
 - c. To find out the bearing of a point from other point situated on the ground.
 - d. To determine one's and enemy's position on the map by resection and intersection methods with the help of compass.
 - e. To set the compass in a particular direction for night march
2. Determination of individual compass error.

B. TOPICS FOR DISCUSSION/PRESENTATION:

Marks: 05

- a. Historical Warfare
- b. Modern Warfare
- c. Impact of Industrial Revolution on Warfare

C. RECORD & VIVA-VOCE

Marks: 05

**SEMESTER–III
GEOGRAPHY**

**RESOURCES AND ENVIRONMENT: WORLD PATTERNS
(THEORY)**

Time: 3 Hours

Max. Marks: 100

Theory Marks: 70

Practical Marks: 30

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: Stencil/outline maps and coloured pencils are allowed.

Objective:

1. To understand concept of resources and their interface with environment;
2. To examine use and misuse of various resources, and analyse future prospects;
3. To study various methods and approaches of conservation and management of natural resources;
4. To understand the quantitative and qualitative aspects of human resources in spatial perspectives and the associated environmental problems.

Course Contents:

SECTION–A

Environment and Resources:

Meaning, nature and components of environment. Nature and definition of Resources. Resources environment interface.

Classification of Resources: Biotic and abiotic, Exhaustible and inexhaustible, Potential and Developed, Agricultural and Pastoral, Mineral and Industrial.

SECTION–B

Utilization of Natural Resources:

Distribution availability, utilization and conservation of water, minerals (in general) and energy resources; their economic and environmental significance and sustainability.

Types and distribution of forests—their economic and environmental significance and conservation.

Types and distribution of fisheries—their economic and environmental significance and conservation.

Major soil types and their distribution; problems of soil erosion and soil conservation.

SECTION–C

Human Resources: Number, Growth, Distribution and Density.

Population Resources Relationship: Population- Resource Regions of the world.

SECTION–D

Environment: Natural and Human, Man-environment relationship—determinism, Possibilism, ecology.

Biodiversity: Loss of natural and agro-biodiversity.

Environmental Issues: Pollution; food security; deforestation; conservation of wild life.

Books Recommended:

1. Agarwal, A. et.al. : The Citizen's Fifth Report, Centre for Science and Environment, New Delhi, 1999.
2. Chandna, R.C.: A Geography of Population, Kalyani Publishers, Ludhiana, 2014.
3. Chawla, I.N.: Geography of Resources, Bharat Prakashan, Jalandhar, latest edition.
4. Hartshorne Truman A and W. Alexander: Economic Geography, Prentice Hall, 1988, 3rd John Edition.
5. Kates, R.W. & Burton, I (Eds.): Geography, Resources and Environment, Vol. I & II, University of Chicago Press, Chicago, 1986.
6. Naresh Kumar: Environmental Studies, Sharma Publishers, Jalandhar 2009.
7. Trewartha, G.T.: A Geography of Population— World Patterns. John Wiley and Sons, New York, 1969.
8. Zelinsky, Wilbur: A Prologue to Population Geography, Prentice Hall, New Jersey, 1966.
9. Zimmerman E.W.: World Resources and Industries, Harpar, New York.
10. Chandna, R.C.: Environmental Geography Kalyani Publishers, Ludhiana, 2014.
11. Chawla. I.N.,: Resources & Environmental Bharat Publishers, Jalandhar.
12. Singh, J.S. & Singh, S.P. & Gupta S.R. (Eds.): Ecology Environment and Resources Conservation, Anamaya Publishers, New Delhi, 2008.

SEMESTER–III
GEOGRAPHY
CARTOGRAPHIC REPRESENTATION OF GEOGRAPHIC DATA
(PRACTICAL)

Time: 3 Hours

Max. Marks: 30

Written Paper of 3 Hours: 15 Marks

Practical Record (File): 08 Marks

Viva: 07 Marks

Objective:

1. To apprise the students with symbolization of different types of geographical data and depiction of various spatial data.
2. To provide training in application of various graphical methods of depicting geographic data.

Course Contents:

SECTION–A

Symbolization of Geographical Data:

- a) **Point Symbols:** Dot, circle, sphere.
- b) **Line Symbols:** Isopleths and flow lines.
- c) **Areal Symbols:** Choropleth maps and their types

SECTION–B

- a) Representation of Point symbols, Line symbols and area symbols in Cartographic Representation of: Population data (distribution, density, growth, migration and literacy)
- b) Agriculture data (land utilization, distribution of crops, percentage of cropped area and irrigated areas).
- c) Industrial data (distribution, employment and production)
- d) Transport data (traffic flow).

Note:

1. A compulsory question containing 10 short answer type questions will be set covering the whole syllabus. The students will attempt 6 short answer type questions in about 25–30 words each. Each short answer type question will carry ½ mark (Total 3 marks).
2. The whole syllabus will be divided into 2 units. Eight questions will be set out of the whole syllabus, four from each unit. The students will be required to attempt two questions from each unit. Each question will carry 3 marks. These will be in addition to the compulsory question at serial number 1. (Total 12 marks)
3. Evaluation of Practical Record will be done at the time of viva-voice examination.
4. A minimum of 16 sheet are to be prepared by each student.
5. In case, the candidate has applied for improvement, he/she should be required to make a fresh practical note book.
6. For practical classes, the number of students in one group shall not exceed fifteen.

Books Recommended:**Essential Readings:**

7. Khullar, D.R.: Essentials of Practical Geography, New Academic Publishing Co., Mai Hiran Gate, Jalandhar, 2000.
8. Robinson, A.H.: Elements of Cartography, John Wiley, New York, 1995.
9. Singh, Gopal: Mapwork & Practical Geography, Vikas Publishing House Pvt. Ltd., New Delhi, 1995.
10. Singh, R.L. & Singh Raghunandan: Mapwork and Practical Geography, Central Book Depot, Allahabad, 1993.

Further Readings:

1. Birch, T.W.: Maps Topographical & Statistical; Clarendon Press, Oxford, 1949.
2. Garnett, A.: Geographical Interpretation of Topographical Maps, George Harrap & Co., London, 1953.
3. Monkhosue, F.J.: Maps and Diagrams, Methuen & Co., London, 1994 (reprint).

**SEMESTER–III
PUBLIC ADMINISTRATION
PERSONNEL ADMINISTRATION IN INDIA**

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Introduction:

Meaning, Nature and Scope of Personnel Administration.
Characteristics of Public Personnel Administration in India.
Functions and Significance of Personnel Administration.
Public Services and their role in Administrative System.

SECTION–B

Civil Services in India: Role and rationale of All India Services.
Recruitment: Meaning, Methods
Promotion: Meaning, Principles.
Training: Meaning, Objectives and Types, Training System in India.

SECTION–C

Personnel Agencies:

Functions and Role of Department of Personnel and Public
Grievances, Union Public Service Commission, State Public Service
Commissions & Staff Selection Commissions.

SECTION–D

Employer—Employee Relations and Working Conditions:

Employee's participation in Management.
Rights of Public Servant, Conduct and Discipline.
Integrity in Public Services - Problem of Corruption.
Lok Pal and Lok Ayukta. Central Vigilance Commission.

Suggested Readings:

1. Government of India, Report on Personnel Administration, New Delhi, 1970.
2. Glenn O. Stahl: Public Personnel Administration, 7th Ed., Oxford IBH Publication Compo, New Delhi, 1977.
3. Goel S.L. and Shalini Rajneesh, Public Personnel Administration: Theory and Practice, Deep and Deep Publications, New Delhi, 2002.
4. Indian Institute of Public Administration, Personnel Administration, New Delhi, 1970.
5. Sahib Singh and Sawinder Singh, Public Personnel and Financial Administration, New Academic Publisher, 2002.
6. Sinha V.M., Personnel Administration, R.B.S.A., Publisher, Jaipur, 1985

SEMESTER-III
WOMEN EMPOWERMENT
WOMEN EMPOWERMENT: INSTITUTIONS AND PROCESSES

Time: 3 Hrs.

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Women Empowerment and role of Social Institutions:-

1. Women Empowerment: Meaning and Efforts.
2. Role of Social Institutions (Family, educational institutions, media, press and Khap Panchayats).

SECTION-B

Women Empowerment: Commissions and Govt. Policies:-

1. Commissions and bodies for gender equality: central, State and local.
2. Recent policies of Government of India for Women Empowerment.

SECTION-C

Women Empowerment: Patriarchy, Matriarchy and Social Movements

1. Patriarchy and Matriarchy- Ideology practice and Women Rights.
2. Social and Religious Movements for Women Rights.

SECTION-D

Women Empowerment: Legal Rights

1. Women, work and livelihood: Sexual Harassment at work place.
2. Women and Legal Rights: Matrimonial, Property and old Age Rights.

SEMESTER-III

Punjab History & Culture (From 1000 to 1605 A. D)
(Special Paper in lieu of Punjabi compulsory)
(For those students who are not domicile of Punjab)

Time: 3 Hours

Max. Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION- A

1. Society and Culture of Punjab during the Turko-Afghan rule.
2. The Punjab under the Mughals

SECTION- B

3. Bhakti movement and its impact on Society of Punjab
4. Sufism in Punjab with special reference to Baba Farid.

SECTION--C

5. Guru Nanak-Life and travels
6. Teachings of Guru Nanak, Concept of Sangat, Pangat and dharmsal.

SECTION--D

7. Contribution of Guru Angad Dev, Guru Amar Das and Guru Ram Das.
8. Compilation of Adi Granth and martyadom of Guru Arjun Dev

Suggested Readings

1. Chopra, P.N., Puri, B.N., & Das, M.N.(1974). *A Social, Cultural & Economic History of India*, Vol. II. New Delhi: Macmillan India.
2. Grewal, J.S. (1994). *The Sikhs of the Punjab*, Cambridge University Press, New Delhi.
3. Singh, Fauja (1972). *A History of the Sikhs*, Vol. II, I. Patiala: Punjabi University.
4. Singh, Kushwant (2011). *A History of the Sikhs- Vol. I (1469-1839)*. New Delhi: Oxford University Press.
5. Singh, Kirpal (1990). *History and Culture of the Punjab-Part II (Medieval Period)*. Patiala: Publication Bureau, Punjabi University.

**SEMESTER–III
ECONOMICS**

INDIAN ECONOMY

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION – A

Nature of Indian Economy, Agriculture in India: Nature and Importance of Agriculture, Causes of Decline in Productivity, Sustainable Agricultural Growth. Green Revolution and New Agricultural Strategy, WTO and Indian Agriculture (Introductory).

SECTION – B

Industry: Performance and Problems of Industrial Development, Public Sector versus Private Sector, Role of Privatization, Role of Small and Cottage Industries. Latest Industrial Policy.

SECTION – C

Foreign Trade: Direction and Composition of Exports and Imports Since 1991, Recent Foreign Trade Policy, Balance of Payment Problem. Foreign Capital and Multinational Corporations in India.

SECTION – D

Features of Population Growth in India, Major Problems of the Economy – Inflation, Unemployment, Poverty and Inequality, Current Indian Tax Structure. Planning- Objectives, Strategy, Evaluation of Planning in India. A Brief Idea of Objectives, Targets, Resources of the Latest Five Year Plan (Twelfth Five Year Plan). Role and Functions of Niti Ayog.

Recommended Texts:

1. Mishra and Puri: Indian Economy, Himalaya Publication House, Mumbai, (Latest Edition).
2. Rudder Dutt and: Indian Economy (Latest), S. Sundharam Chand & Co. Ltd., New Delhi, (Latest Edition).
3. A.N. Aggarwal: Indian Economy, Vikas Publications, Delhi, (Latest Edition).
4. C.D. Wadhwa: Indian Economic Policy (1980), Tata McGraw Hill, Bombay, 1973.
5. GOI: Economic Survey (Latest Edition).

SEMESTER–III
INDUSTRIAL ECONOMICS
INDUSTRIAL ECONOMICS-III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Organisational forms of the firm; Ownership, Control and management and goal conflict in a firm; alternative objectives of the firm; active and passive firm.

SECTION–B

Market Structure: Buyer's concentration; entry conditions and economies of scale; Market structure and association.

SECTION–C

Market Conduct: Investment decisions: Theory and evidence; Financial decisions : retention pay-out ratio; advertising costs, profitability and market structure

SECTION–D

Industrial Performance: Industrial productivity, efficiency and capacity utilization – concept and measurement; firm size, optima and their reconciliation.

Recommended Texts

1. Devine. P.A. et. al. : An Introduction to Industrial Economics.
2. Koutosoyianinis. A. : Modern Microeconomics.
3. Barthwal R.R. : Industrial Economics, An Introductory text Book.
4. Hay, D.A. and D.J. Morris : Industrial Economics : Theory and Evidence, Oxford University Press, London.

SEMESTER-III
QUANTITATIVE TECHNIQUES

QUANTITATIVE TECHNIQUES-III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Differentiation: Maxima and Minima of Functions, Partial derivatives, Higher order partial derivatives.

SECTION-B

Integration (Excluding Trigonometric and Inverse Functions): Indefinite Integrals; Integration by Partial Fractions; Integration by substitution; Integration by parts; Definite Integrals.

Application of Integration in Consumer Surplus and Producer Surplus.

SECTION-C

Matrices: Definition, Types, Addition, Subtraction and Multiplication of Matrices, Scaler Multiplication, Transposition, Determinants and their Properties, Minors and Co-factors, Rank of a Matrix, Inverse of a Matrix, Cramer's Rule for Solution of Simultaneous system of equations. Applications of matrices in economics.

SECTION-D

Linear Programming: Formulation of problem, Assumptions, Graphical solution, Simplex method. Use of Artificial Variables, Dual Simplex method.

Input-Output Analysis: Basic concepts, Input-Output tables for closed and open economies, Leontief Basic Input-Output Model.

Recommended Texts:

1. Yamane Taro: Mathematics for Economics, Prentice Hall of India, New Delhi, 1995.
2. Allen R.G.D.: Mathematical Analysis for Economists, ELBS and Macmillan Press, 1971.
3. Chaing, A.: Fundamental Methods of Mathematical Economics.

SEMESTER–III
AGRICULTURAL ECONOMICS & MARKETING

AGRICULTURAL ECONOMICS–II

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Institutional Changes, land reforms, consolidation of holdings, abolition of intermediaries, ceiling on land-holdings-need, nature and evaluation with special reference to India.

New Agricultural Technology, its nature, role adoption and impact on output, employment and income distribution.

SECTION–B

Agricultural Price-Policy, demand and supply of Agricultural products. Evolution of price policy function, objectives, instruments, impact on income, output and employment.

SECTION–C

Agricultural Finance-Need for agricultural credit, agencies, role of finance in developing agriculture, role of Co-operative, Commercial Banks, RRBS, Role of NABARD.

Self help groups, joint liability groups. Service Area Approach, Lead Bank scheme, Kisan Credit Card. Growth in Agricultural credit, Repayment performance, Principals of credit worthiness.

SECTION–D

Agricultural taxation case for agriculture taxation, case for special treatment, effect of agricultural taxation on economic development, agricultural taxation in India.

Readings:

1. A.S. Kahlon and: Agricultural Price Policy in India, D.S. Tyagi Allied Publishers, New Delhi (1983).
2. Rajbans Kaur: Agricultural Price Policy in Economic Development, Kalyani Publishers, New Delhi (1975).
3. P.C. Josh: Land Reforms in India – Trends and Perspectives, Allied Publishers, Bombay (1976).
4. C.B. Memoria: Agricultural Problems of India, Kitab Mahal (1985).

**SEMESTER–III
RURAL DEVELOPMENT**

RURAL DEVELOPMENT–III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Marketing concepts and types, Importance and features; Defects and consequences; Co-operative Marketing; Government and marketing; Sales Promotion.

Agricultural Exports: Agro Processing; Present Position, Problems and Policy.

SECTION–B

Agricultural Prices: Market forces and Government intervention; Trends and causes of Rise and Fluctuations; Stabilisation and Policy, Buffer-Stocks and Imports.

SECTION–C

Rural Indebtedness: Nature, magnitude and consequences; Causes and remedial measure. Commercial Banks, Magnitude of help, Assessment of performance; Regional Rural Banks.

SECTION–D

Cooperative Credit: Importance and Growth, Weaknesses and Improvements. Students should be given an elementary exposure to the subject.

Suggested Readings:

1. A.N. Aggarwal: Problems, Progress and Prospects, Indian Agriculture, 419 to 465 pages on Marketing.
2. A.N. Aggarwal: Rural Economy of India, Kundan Lal.
3. Sadhu and Singh: Fundamentals of Agricultural Economics, 227 to 251 pages on Agricultural Marketing.
4. K.B. Mukherjee: Agricultural Marketing in India.
5. Kohl, Richard L.: Marketing of Agricultural Products, Prentice Hall of India, 2002.
6. S.S. Acharya: Agricultural Marketing in N.D. Aggarwal: India, Third Edition, Oxford and IVth Pubilshers, New Delhi, 1999.

SEMESTER–III

**OFFICE MANAGEMENT AND SECRETARIAL PRACTICE (VOCATIONAL)
OFFICE MANAGEMENT AND METHODS
(THEORY)**

Time: 3 Hrs.

**Max Marks: 100
Theory Marks : 60
Practical Marks : 40**

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Office and office Management – meaning of office, function of office, primary and administrative functions, importance of office. Relation of office with other departments of business Organization. Concept of paperless office, virtual office, back and front office, open and private office. Definition and elements of office management, duties of an Office Manager.

SECTION–B

Filing and Indexing – Meaning and importance of filing, essential of good filing system. Centralized and decentralized filing system. Meaning, need and types of indexing used in the business organization.

Office forms– Meaning and types of forms used in business organization, advantages, forms controls, objectives, form designing, principles of forms designing and specimens of forms used in office. Office Record Management – Meaning, importance of record keeping management, principles of record management and types of records kept in a business organization.

SECTION–C

Office Machines and equipments – Importance, objectives of office machines.

Office Safety and Security – Meaning, importance of office Safety, safety hazards and steps to improve office safety. Security hazards and steps to improve office security.

SECTION–D

Measurement of Office Work – Importance, purpose, difficulty in measuring office work. Different ways of measurement, setting of work standards, benefits of work standards. Techniques of setting standards. Office Manuals – Meaning, need, types of office manuals and steps in preparing of office manuals.

Suggested Readings:

- 1) Chhabra, T.N., Modern Business Organisation, New Delhi, Dhanpat Rai & Sons.
- 2) Duggal, Balraj, Office Management and Commercial Correspondence, Kitab Mahal, New Delhi.
- 3) P.K. Ghosh, “Office Management”, Sultan Chand & Sons. New Delhi
- 4) R.K. Chopra, Office Management, Himalaya Publishing House

SEMESTER–III

OFFICE MANAGEMENT AND SECRETARIAL PRACTICE (VOCATIONAL)

**OFFICE MANAGEMENT AND METHODS
(PRACTICAL)**

Marks: 40

1. Filing System: Centralised & Decentralised .
2. Indexing: Learning Various types of indexing.
3. Office forms: Developing and maintaining various forms used in office.
4. Record Management: Learning how to manage various office records.
5. Practice on various office machines & equipments.
6. Preparing office manuals.

Suggested Reading Materials:

1. Office Practice Made Simple W.H. Allen Publishers by G. Whitehead 1974.
2. Office Management and Commercial Correspondence,. By Balraj Duggal 1998. Published by Kitab Mahal.
3. Office Management and Secretarial Practice, Gyan Publishers House, Delhi by V.P. Singh.
4. Business Correspondence and Office Practice by Thakkar Publication, Bombay, Nagamia and Bhal.
5. Business Communication by Doctor and Doctor Seth Publication, Bombay-4.
6. Commercial Correspondence by Majumdar.
7. Modern Commercial Correspondence by R.S.Sharma.
8. Modern Commercial Correspondence by Chandgadkar& Tele. Vikas Publications, Pune.
9. Secretarial Practice by A.H. Mehta & others.
10. Office Management and Commercial Correspondence by BalrajDuggal 1998. Published by Kitab Mahal, 1998.
11. Office Procedure & Secretarial Practice, O.P. Kuthiala, Pritam Publications.
12. Office Management R.K. Sharma, Sharma K. Gupta-Kalyani Publishers L. Sush (Nayar, 2003).
13. Office Management R.K. Choopra, Himalaya Publishing House, 2000.
14. Drafing& Office Procedure, Edgar Thrope.
15. Office Management by Marityen Juled Manning Crisp Publications, 2001.
16. Complete Office Handbook: Third Edition by Suson Jaderstrom, 2002.

SEMESTER-III

**TRAVEL AND TOURISM
MANAGEMENT OF TRAVEL AND TOURISM**

Time: 3 Hrs.

Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Strategic Planning and Strategic Marketing: Business Environment, Alliances - Market Sharing, Takeovers and Mergers

Operations Management: Booking, Reservation, Blocking, Reconfirmation.

SECTION-B

Project Planning: Conceptualizing a Project, Project Cycle. Techno-economic survey.

Project Review: Need for a project review, Project appraisal and evaluation, Destination Development

SECTION-C

Financial Management: Financial statements, Financial ratios and performance, Credit system. Commission, Direct sales.

Banking and Forex: Banking Operations, Forex Management, Money Transfers.

SECTION-D

New Trends in Tourism: Health tourism. Ski resorts and Adventure sports, Heritage tours and Eco-tourism, Rural tourism and Space tourism

Event Management and MICE: Role of events for promotion of tourism, Ganga Mahotsava, Lucknow Mahotsava and Taj Mahotsava, Concept of MICE, Conference/conventions and exhibitions.

Role of Government in promoting tourism in India

Suggested Readings:

1. Harris, P. (1995). *Accounting and Finance for the International Hospitality Industry*, Butterworth Heinemann: UK.
2. Harrison, D. (ed) (1992). *Tourism and the Less Developed Countries*, Wiley: UK.
3. Goodall, B. and Ashworth, G. (eds.) (1988). *Marketing in the Tourism Industry: The Promotion of Destination Region*, UK.
4. O.Cornnor, P. (1996). *Using Computers in Hospitality*, Cassell: UK.
5. *National Geographic* and *Discovery*, Channel Programs.

SEMESTER–III
TOURISM AND HOTEL MANAGEMENT
(VOCATIONAL)

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Front Office: Types of Hotels, Pre-registration activities, Registration, Post registration activities, Front Office Salesmanship, Front Office procedures for Emergencies, Calculation of Room position, Job description of Front Office Cashier and Front Office Assistant, Foreign Currency, Night Auditor and its duties

SECTION–B

House Keeping: Role of Housekeeping in hospitality industry, Classification of Equipments, Cleaning Agents and Types; House Keeping Supervision—Importance, Checklist, typical areas usually neglected where special attention is required; Storage facilities and conditions, Cleaning procedures—Cleaning of occupied room, Cleaning of just vacated room, Inspection, Second Service, Replenishment of supplies and lines, Room checklist.

SECTION–C

Food and Beverage Service: Sectors of Food & Beverage, French Classical Menu, Food and their Accompaniments, Restaurants and their subdivisions—Coffee Shop, Room Service, Bars, Banquets, Discotheques, Grill Room, Snack Bar, Night Club, Back area of Food and Beverage service—Still Room, Wash Up, Plate Room, Kitchen Stewarding; Classification of Crockery, Cultery, Glassware, Hollowware, Flatware; Maintenance of Equipments.

SECTION–D

Food and Beverage Production: Classification of Raw Materials; Foundation ingredients—Meaning, Action of Heat on Carbohydrates, Fats, Proteins, Minerals and Vitamins; Preparation of Ingredients; Classification of Equipments; Stocks—Meaning, Uses, Types, Points to be observed while preparing stocks; Sauces—Meaning, types and Recipes; Staff Arrangement in Kitchen.

Note: Industrial Training for one month.

SEMESTER–III**TAX PROCEDURE AND PRACTICE (VOCATIONAL)
REGULATORY FRAMEWORK-DIRECT TAXES****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: The candidates are allowed to use simple (Non- Scientific) calculators.

SECTION–A

Regulatory Framework: An overview of Income Tax Act, 1961 and Income Tax Rules, 1962, Income Tax Authorities. Important Definitions, Basis of Charge and Incidence of Tax

Permanent Account No.: Procedure for obtaining Permanent Account No. (PAN)—Filing and filing of application under Form No.49A.

Payment of Tax: Tax deducted at source, Advance Tax, Self Assessment Tax.

SECTION–B

Tax Deducted at Source: Filing and filing of applications from for obtaining TDS number under Form No.49B obligation of the person making payment, who and when the person is liable to deduct tax at source. Procedure and rate of Tax deducted at source on various payments.

Employers Obligations:

Stage I: Certificate to be issued to the recipient's-filing and issue of the various TDS Forms (16,16A and 16B).

Stage II: Deposit of tax deducted at source-filling and filing of the challan and deposit of tax.

Stage III: Submission of returns of TDS under Form No.24, Form No.26, 26A, 26B, 26C, 26D, 26E

Recipient's Obligations:

To obtain TDS certificate from payer; filling and filing of relevant certificates for lower or no deduction of tax at source (Form No.13C, 14, 14B, 15, 15A, 15AA, 15B, 15D, 15E, 15F, 15G, 15H, 15I).

(B) Advance Tax: Who is liable to pay advance tax, computation of advance tax, instalment and due date of Advance Tax, Interest payable by the assessee. Filing of challan and deposit of Advance Tax

SEMESTER-III

SECTION-C

Return of Income: Who is liable to file return of income, time limit, return of loss, Belated Return, Revised Return, Defective Return, Return by whom to be signed, filling and filing of Return of Income Tax under :

Assessment Procedures: Inquiring before assessment. Assessment under Section 143 (1), Self-assessment Tax, Regular Assessment under Section 143 (2), Best Judgment assessment, income escaping Assessment, issue of notice where income has escaped assessment. Time limit for Notice, Time limit for completion of assessment and reassessment.

SECTION-D

Post Assessment Procedures: Refund - Who can claim refund, Form No. 30 for Refund, Time Limit for claiming refund, Refund of appeal, interest on refunds; Rectification of mistake(s); Appeals and revisions: When an assessee can file appeal, appellate authorities, procedure for filing appeal, filling and filing of Form No.35, Form No.36, Time limit for filing appeal, Revision by Income-Tax Commissioner.

Penalties & Procedure: Procedure for imposing penalties, waiver of penalty, nature of default and penalties imposable.

Transfer of Immoveable Property; Filling and filing of Form No.37EE, Form No.37G, Form No. 37-I Tax clearance certificate and exemption certificate procedure and filling and filing of Form No. 31

References:-

1. Gaur, V.P. and D.B. Narang (2007), Income-Tax Law & Practice, Kalyani Publications, Ludhiana.
2. Prasad, Bhagwati (2006), Direct Taxes Law & Practice, Wihshwa Prakashan, New Delhi.
3. Sinhaima, V.K. and K. Sanghaima (2007) Direct Taxes Law and Practice Taximann Publications (P) Ltd. New Delhi, 2004.
4. Shrivastava M. (1981) Physical Policy & Economic Development in India, Chugh Publications, Alahabad.
5. Mehrotra H.C. and P. Mehrotra 2007. Income Tax Law & Accounts, Sahitya Bahawan Publications, Agra.
6. Taxman's in Director Tax Law as amended by Firance Act 2007. Taxman Allied Services (P) Ltd. New Delhi, 2004.
7. www.incometaxindia.gov.in

SEMESTER-III

ADVERTISING, SALES PROMOTIONS AND SALES MANAGEMENT ADVERTISING-II (VOCATIONAL)

Time: 3 Hours

Max. Marks: 100

On the Job Training of 4 weeks

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Advertising Media: Types of Media-Print Media (News Paper and Magazines, Pamphlets, posters and brochures), electronic media (Radio, Television, Audio Visuals, Cassettes), other Media (Direct Mail outdoor media), their characteristics, merits and limitations.

Media scene in India. Problems of reaching rural audience and markets. Exhibitions and mela. Press Conference.

SECTION-B

Media Planning: Selection of Media category, their reach, frequency and impact. Cost and other factors influencing the choice of media. Media scheduling.

SECTION-C

Evaluation of advertising effectiveness. Importance and difficulties. Methods of measuring advertising effectiveness. Pre-testing and post-testing. Communication effect. Sales effects.

Regulation of advertising in India. Misleading and deceptive advertising and false claims.

SECTION-D

Advertising Agencies: Their role and importance in advertising. Their organisation patterns, Functions, Selection of advertising agency. Agency commission and fee. Advertising Department, its functions and organization.

Suggested Reading:

Same as for paper-2 (relevant chapters).

Suggested Reading:

Same as for paper-2 (relevant chapters).

A consolidated Report on '**On the Job Training**' shall be prepared by every student and must be submitted in the college. The consolidated Report will be evaluated by the external examiner and shall be given the grades as follows:

O - Outstanding

A - Very Good

B - Good

C - Average

D - Unsatisfactory

In case, the training report is rated as unsatisfactory, the candidate shall have to submit it again incorporating the changes suggested by the examiner, within one month from the date of intimation to the candidate by the concerned college.

Note: The candidates are allowed to use simple (Non- Scientific) calculators.

**SEMESTER-III
COMMERCE
BANKING & INSURANCE**

Time: 3 Hours

Max. Marks: 100

Teaching Hours: 80 Periods of 45 Minutes each.

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: The candidates are allowed to use simple (Nonscientific) calculators.

SECTION-A

Introduction to Banking: Definition, types and functions of Banks. Brief outlines of the history of Indian Banking, Banker customer relations.

Deposit Mobilization: Types of deposits, Procedure of opening a bank account. Types of account holders, Trends in deposit mobilisation in India.

Online Banking Technology & Procedure: Debit Cards / Credit Cards (Plastic Currency)

SECTION-B

Loans and Advances: Forms of loans, overdraft, cash credit, joint financing, Hire purchase advances, Bills purchased/discounted. Principles of sound lending. Application for a bank loan. Analysis of credit worthiness of borrower, security and margin requirements. Modes of creating charges. Pledge, hypothecation, simple and equitable mortgages, Guarantees and indemnities. Trends in bank lending in India, Credit creation system by commercial bank.

SECTION-C

Negotiable Instruments: Cheques-crossing and endorsements, payments of cheques, stop payment instruction, role of clearing house, Collection of cheques. Dishonour of cheques, Bills of Exchange-Discounting of Bills, Inland Remittances. Demand Draft, mail transfers, Telegraphic transfers etc.

SECTION-D

Insurance: Definition and advantages of insurance, kinds of insurance and forms of insurance organisation. Essentials of insurance contract, basic principles of insurance. Utmost good faith, insurable interest, indemnity subrogation, contribution, proximate cause. Introduction to general insurance-growth of general insurance, functions of insurance and contracts of insurance, basic principles. Fire insurance, Introduction, standard form policy, scope of cover. Cashless Insurance.

Books Recommended:

1. Dorfman, "Introduction to Risk Management and Insurance", 8th Edition, Prentice Hall of India, 2007.
2. Rejda, "Principles of Risk Management and Insurance", Pearson Education, 2007.
3. Tripathy and Pal, "Insurance and Risk Management", Prentice Hall of India, 2007.
4. Gupta P.K. "Insurance and Risk Management", Himalaya Publishing House, 2007.
5. Paul Justin and Suresh Padamalatha, "Management of Banking and Financial Services", Pearson Education, 2007.
6. Shekhar K.C. and SekharLakshmy, "Banking Theory and Practice", Vikas Publications, 2007.

SEMESTER-III**TOURISM AND TRAVEL MANAGEMENT (VOCATIONAL)
TOURISM & MARKETING****Time: 3 Hrs.****Marks: 100****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Marketing: Concept, Nature, Classification and Characteristics of services and their marketing implications developing marketing strategies for services firms.

SECTION-B

Linkages in Tourism and other sectors (Travel, Agency, Accommodation, Food, Nutrition, Catering).

SECTION-C

Tour Packaging : Concept, Characteristics, Methodology Consideration

SECTION-D

Pricing of Tour Packing, Designing and Printing of Tour Brouchure.

Suggested Readings:

1. Kotler, Philip Marketing Management, Universal Publications, New Delhi, 2006.
2. Maccarthy, D.K.J.basic Marketing-A Management Approach, 2005.
3. Douglas Foster Travel and Tourism Management, 1985.
4. Negi, M.S.Tourism and Hotelling, 1997.
5. Wahab, S.Grampter, L Tourism Marketing: Tourism International Press & Roth Fibbs. London, 1976.
6. Stephan F. Witt & Louis Tourism Marketing and Management Handbook, Moutinch Prentice Hall, New York 1985.
7. Renal, A, Nykiel Marketing in Hospitality Industry (2nd Ed.) Van Nostrend Reinhold, 1986.
8. Hunter Mountaining Monument (Tourism in Your Business), Canadian Hotel and Restaurant Ltd., 1984.

SEMESTER-III**MATHEMATICS****PAPER-I: ANALYSIS****Time: 3 Hours****Marks: 50****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion.

SECTION-B

Series of non-negative terms. Comparison tests. Cauchy's integral test. Ratio test. Cauchy's root test. Raabe's test, logarithmic test. De Morgan's and Bertrand's test, Kummer's test, Cauchy condensation test, Gauss test, Alternating series. Leibnitz's test. absolute and conditional convergence.

SECTION-C

Partitions, Upper and lower sums. Upper and lower integrals, Riemann integrability. Conditions of existence of Riemann integrability of continuous functions and of monotone functions. Algebra of integrable functions.

SECTION-D

Improper integrals and statements of their conditions of existence. Test of the convergence of improper integral, Beta and Gamma functions.

Books Recommended:

1. Malik, S.C. and Savita Arora: Mathematical Analysis, Wiley Eastern Ltd. (1991).
2. Apostol, T.M.: Mathematical Analysis, Addison Wesley Series in Mathematics (1974).
3. Narayan, S. and P.K. Mittal: Integral Calculus, Sultan Chand & Sons.

SEMESTER-III**MATHEMATICS****PAPER-II: ANALYTICAL GEOMETRY****Time: 3 Hours****Marks: 50****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Transformation of axes, shifting of origin, Rotation of axes in two dimension and three dimension, The invariants, Joint equation of pair of straight lines, equations of bisectors

SECTION-B

Parabola and its properties. Tangents and normals, Pole and polar, pair of tangents at a point, Chord of contact, equation of the chord in terms of mid point and diameter of conic.

SECTION-C

Ellipse and hyperbola with their properties, Tangents and normals, Pole and polar, pair of tangents at a point, Chord of contact, Identifications of curves represented by second degree equation (including pair of lines).

SECTION-D

Intersection of three planes, condition for three planes to intersect in a point or along a line or to form a prism, Sphere: Section of a sphere by a plane, spheres of a given circle. Intersection of a line and a sphere. Tangent line, tangent plane, power of a point w.r.t. a sphere, radical planes.

Books Recommended

1. Gorakh Prasad and H.C. Gupta: Text Book on Coordinate Geometry.
2. S.L. Loney: The Elements of Coordinate Geometry, Macmillan and Company, London.
3. Narayan, S.: Analytical Solid Geometry, Sultan Chand & Sons (2005).
4. Kreyszig, E.: Advanced Engineering Mathematics.
5. Thomos, G.B. and Finney, R.L.: Calculus and Analytic Geometry.

SEMESTER-III
STATISTICS
PAPER-I: ADVANCED PROBABILITY-I

Time: 3 Hours

Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Two dimensional random variables, their joint probability mass function and joint probability density function, marginal and conditional probability distribution functions, Independent random variables.

SECTION-B

Expected value of real valued function of two-dimensional random variables, variance of a linear combination of random variables, Moments of Bivariate Probability distributions, Bivariate moment generating function.

SECTION-C

Conditional expectation and conditional variance, Covariance, correlation coefficient. Cauchy Schwartz Inequality and its applications,

SECTION-D

Bivariate normal distribution, marginal and conditional probability distributions associated with the bivariate normal distribution. Chebyshev's inequality and its applications

Books Recommended:

1. Meyer, P.L. Introductory Probability and Statistical Applications, Addison—Wesley, (1970).
2. Ross, S.A., First Course in Probability, Pearson Education, 2007.

Books Suggested for Supplementary Reading:

1. Biswal, P.C., Probability and Statistics, Prentice Hall of India, 2007.
2. Miller, I and Miller, M., Mathematical Statistics with Applications, Seventh Edition, Pearson Education, 2007.
3. Gupta, S.C. and Kapoor, V.K., Fundamentals of Mathematical Statistics, Sultan Chand and Company, 2007.

SEMESTER-III
STATISTICS
PAPER-II: STATISTICAL INFERENCE-I

Time: 3 Hours

Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Point estimation, estimator and estimates, criteria for good estimators, unbiasedness, consistency, efficiency and sufficiency (only the definitions and examples).

SECTION-B

Minimum variance unbiased estimator, Methods of estimation: moments and maximum likelihood method of estimation.

SECTION-C

Interval estimation. Interval estimate of the mean of a normal distribution, Neyman and Pearson's theory of testing hypothesis, the concepts of statistical hypothesis, two types of errors, critical region, significance level.

SECTION-D

Power and power function, Most powerful test, The Neyman Pearson theorem (only the statement) and its applications for testing a simple hypothesis against a simple alternative.

Books Recommended:

1. Goon. A.M., Gupta. M.K. and Dasgupta B., Fundamentals of Statistics, Vol.I & II, World Press, 2005.
2. Gupta, S.C. and Kapoor, V.K., Fundamentals of Mathematical Statistics, Sultan Chand and Company, 2007.

Books Suggested for Supplementary Reading:

1. Hogg. R.V. and Mckean, J.W. and Craig. A.T., Introduction to Mathematical Statistics, Pearson Education, 2007.
2. Miller, I and Miller, M., Mathematical Statistics with Applications, Pearson Education, 2007.

SEMESTER–III
STATISTICS

PAPER-III: - Practical based on PAPER–II: STATISTICAL INFERENCE–I

Time: 2 Hours

Marks: 30

Practical Note book: 05

Viva – voce: 10

Exercises: 15

Teaching time for practical paper would be one hour per week.

List of practical exercises

1. Exercises on unbiased, consistent, efficient and sufficient estimators
2. Exercises on methods of estimation
3. Exercises on interval estimation
4. Exercises on two types of errors, critical region, significance level,
5. Exercises on Most powerful test,

Students are required to prepare a practical note book with at least 15 exercises based upon the above list. At the end of semester, there is a practical examination jointly conducted by two examiners (one is internal and other one is external). External examiner is appointed by the university and the internal examiner is appointed by the principal of the concerned college. This practical examination will cover a written test followed by a viva-voce to test the practical knowledge of students about the contents. The candidates are allowed to use Non–Programmable calculators. The distribution of marks is as under:

**SEMESTER-III
CHEMISTRY
ORGANIC CHEMISTRY-II
(THEORY)**

**Time: 3 Hrs.
45 Hrs (3 Hrs/week)**

Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

I. Stereochemistry Organic Compounds

(12 Hrs.)

Concept of isomerism. Types of isomerism.

Optical isomerism- elements of symmetry, molecular chirality, enantiomers, stereogenic centre, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization. Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature.

Geometric isomerism-determination of configuration of geometric isomers. E & Z system of nomenclature.

SECTION-B

II. Isomerism

(11 Hrs.)

Conformational isomerism-conformational analysis of ethane and n-butane; conformation of cyclohexane, axial and equatorial bonds, conformation of mono substituted cyclohexane derivatives. Newman projection and Sawhorse formulae, Fischer and flying wedge formulae. Difference between configuration and conformation.

III. Alcohols

Classification and nomenclature. Monohydric alcohols—nomenclature. Acidic nature. Reactions of alcohols, cleavage of O-H bond, C-O bond and dehydration reactions, regioselectivity of dehydration. Dihydric alcohols—nomenclature, methods of formation, chemical reactions of vicinal glycols, oxidative cleavage $[Pb(OAc)_4]$ and $[HIO_4]$ and pinacol-pinacolone rearrangement.

SECTION-C

IV. Phenols

(11 Hrs.)

Nomenclature, structure and bonding, Preparation of phenols, physical properties and acidic character, Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion. Reactions of phenols—electrophilic aromatic substitution, acylation and carboxylation. Mechanisms of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Reimer Tiemann reaction.

V. Preparation of Aldehydes and Ketones

Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids.

SECTION-D

VI. Properties of Aldehydes and Ketones

(11 Hrs.)

Physical properties. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensations. Condensation with ammonia and its derivatives. Wittig reaction. Mannich reaction. Use of acetals as protecting group. Oxidation of aldehydes, Baeyer-Villiger oxidation of Ketones, Cannizzaro reaction. MPV, Clemmensen, Wolff-Kishner, LiAlH_4 and NaBH_4 reductions. Halogenation of enolizable ketones.

Coupling reaction using Transition metal/metal complexes (formation of C-C bonds): concept of Homo and Cross coupling reactions with emphasis on Glaser reaction, Ullman reaction, Sonogashira, Suzuki, Hiyama, Negishi and Kumada coupling reactions.

Books Suggested:-

1. Morrison, R.T., Boyd, R.N., Organic Chemistry; 6th edition, Pubs: Prentice-Hall, 1992.
2. Wade Jr., L.G., Singh, M.S., Organic Chemistry; 6th edition, Pubs: Pearson Education, 2008.
3. Mukherji, S.M., Singh, S.P., Kapoor, R.P., Organic Chemistry; Pubs: Wiley Eastern Limited, 1985, Vol. I, II, III.
4. Solomons, T.W., Fryhle, C.B., Organic Chemistry; 9th edition, Pubs: Wiley India, 2007.
5. Carey, F.A., Organic Chemistry; 4th edition, Pubs: McGraw-Hill, 2000.
6. Streitwieser, A., Clayton, Jr., Heathcock, H., Introduction to Organic Chemistry; 3rd edition, Pubs: Macmillan Publishing Company, 1989.
7. University General Chemistry, C.N.R. Rao, Macmillan.

SEMESTER-III
CHEMISTRY
PHYSICAL CHEMISTRY-II
(THEORY)

Time: 3 Hrs.
45 Hrs (3 Hrs/week)

Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

I. Thermodynamics-I

11 Hrs.

Definition of thermodynamic terms: System, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work.

First Law of Thermodynamics: Statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law, Joule-Thomson coefficient and inversion temperature, Calculation of w , q , dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

SECTION-B

II. Thermochemistry:

12 Hrs.

Standard state, types of enthalpy of reactions, standard enthalpy of formation, Hess's Law of heat summation and its applications. Heat of reaction at constant pressure and at constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy. Kirchhoff's equation.

III. Thermodynamics-II

Second Law of Thermodynamics: Need for the law, different statements of the 2nd law, Carnot cycle and its efficiency, Carnot theorem. Thermodynamic scale of temperature.

Concept of Entropy : Entropy as a state function, entropy as a function of V & T , entropy as a function of P & T , entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases.

SECTION-C

IV. Thermodynamics-III

11 Hrs.

Third Law of Thermodynamics: Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions; Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change, Variation of G and A with P, V and T .

Equilibrium

V. Chemical Equilibrium

Equilibrium constant and free energy. Thermodynamic derivation of law of mass action. Determination of K_p , K_c , K_a and their relationship, Clausius-Clapeyron equation, applications.

SECTION-D

VI. Introduction to Phase Equilibrium

11 Hrs.

Statement and meaning of the terms-phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibria of one component system-water, CO_2 and S systems. Phase equilibria of two component systems-solid-liquid equilibria, simple eutectic-Bi-Cd, Pb-Ag systems, desilverisation of lead. Solid solutions-compound formation with congruent melting point (Mg-Zn) and incongruent melting point, $\text{NaCl-H}_2\text{O}$, $\text{FeCl}_3\text{-H}_2\text{O}$ and $\text{CuSO}_4\text{-H}_2\text{O}$ system. Freezing mixtures, acetone-dry ice.

Partially miscible liquids Phenol-water, triethylamine-water, Nicotine-water System. Lower and upper consolute temperature, Effect of impurity on consolute temperature, immiscible liquids, steam distillation.

Nernst distribution law-thermodynamic derivation and applications.

Books Suggested:-

1. Atkins, P., Paula, J.de, Atkins Physical Chemistry; 8th edition, Pubs: Oxford University Press, 2008.
2. Puri, B.R., Sharma, L.R., Pathania, M.S., Principles of Physical Chemistry; 43rd edition, Pubs: Vishal Publishing Co., 2008.
3. Barrow, G.M., Physical Chemistry; 6th edition, Pubs: McGraw Hill Inc, 1996.
4. Rao, C.N.R., University General Chemistry; Pubs: Macmillan India, 1985.
5. Berry, R.S., Rice, S.A., Ross, J., Physical Chemistry; 2nd edition, Pubs: Oxford University Press, 2000.
6. Albert, R.A., Silbey, R.J., Physical Chemistry; 1st edition, Pubs: John Wiley & Sons Inc., 1992.
7. Dogra, S.K., Dogra, S., Physical Chemistry Through Problems; Pubs: Wiley Eastern Limited, 1991.
8. Levine, I.N., Physical Chemistry; 5th edition, Pubs: Tata McGraw Hill Publishing Co. Ltd., 2002.
9. Moore, W. J., Basic Physical Chemistry; Pubs: Prentice Hall of India Pvt. Ltd, 1983.
10. Metz, C.R., Theory and Problems of Physical Chemistry; Schaum's outline series, 2nd edition, Pubs: McGraw-Hall Book company, 1989.

**SEMESTER-III
CHEMISTRY
(PRACTICAL)**

Duration: 3½ Hrs.

Marks: 30

6 Period/Week

Quantitative Analysis

Volumetric Analysis

- Determination of acetic acid in commercial vinegar using NaOH.
- Determination of alkali content-antacid tablet using HCl.
- Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- Estimation of hardness of water by EDTA.
- Estimation of ferrous and ferric by dichromate method.
- Estimation of copper using sodiumthiosulphate.

Gravimetric Analysis

Analysis of Cu as CuSCN and Ni as Ni (dimethylglyoxime)

Organic Chemistry Laboratory Techniques

Thin Layer Chromatography

Determination of R_f values and identification of organic compounds.

- Separation of green leaf pigments (spinach leaves may be used).
- Separation of a mixture of dyes using cyclohexane and ethyl acetate (8.5:1.5).

Practical Examination

1) Volumetry / Gravimetry	16
2) Thin Layer chromatography	07
3) Viva-Voce	04
4) Note Book	03

Books Suggested:-

- Vogel's Textbook of Quantitative Inorganic Analysis (revised), J. Bassett, R.C. Denney, G.H. Jeffery and J. Mandham, ELBS.
- Standard Methods of Chemical. Analysis, W.W. Scott: The Technical Press.
- Experimental Inorganic Chemistry, W.G. Palmer, Cambridge.
- Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern.
- Vogel's Textbook of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchell, ELBS.
- Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.
- Experimental Organic Chemistry, Vol. I & II, P.R. Singh, D.S. Gupta and K.S. Bajpai, Tata McGraw Hill.

SEMESTER-III
PHYSICS
PAPER-A
STATISTICAL PHYSICS & THERMODYNAMICS
(THEORY)

Time: 3 Hours

Marks: 35

Total Teaching Hrs: 45(3h/week)

Pass Marks: 35%

Note : There should be 20% numericals in each paper.

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Basic ideas of Statistical Physics, Scope of Statistical Physics, Basic ideas about probability, Distribution of four distinguishable particles into compartments of equal size. Concept of macrostates, microstates, Thermodynamic Probability, Effects of constraints on the system. Distribution of particles in two compartments. Deviation from the state of maximum probability. Equilibrium state of dynamic system. Distribution of distinguishable n particles in k compartments of unequal sizes.

11 Lectures

SECTION-B

Phase space and division into elementary cells. Three kinds of statistics. The basic approach in three statistics. Maxwell Boltzman (MB) statistics applied to an ideal gas in equilibrium. Experimental verification of law of distribution of molecular speeds. Need for Quantum Statistics – B.E. Statement of planck's law of Radiation Wien's Displacement and Stefan's law. Fermi Dirac (FD) statistics. Comparison of M.B, B.E and F.D statistics.

11 Lectures

SECTION-C

Statistical definition of entropy, Change of entropy of system, additive nature of entropy, Law of increase of entropy, Reversible and irreversible processes, and their examples, work done in reversible process, examples of increase in entropy in natural processes, entropy and disorder, Brief review of Terms, Laws of Thermodynamics, Carnot Cycle, Entropy changes in carnot cycle, Applications of thermodynamics to thermoelectric effect, change of entropy along reversible path in P-V diagram. Heat death of universe.

12 Lectures

SECTION-D

Derivation of Maxwell Thermodynamics relations, Cooling produced by adiabatic stretching, Adiabatic Compression, change of internal energy with volume, Specific heat and constant pressure and constant volume. Expression for C_p-C_v , Change of state and Claypron equation.

11 Lectures

Books Suggested:-

1. Statistical Mechanics: B.B. Laud, (Macmillan India Ltd.) 1981.
2. Statistical Physics: Bhattacharjee, J.K. (Allied Pub., Delhi) 2000.
3. Statistical Physics and Thermodynamics: V.S. Bhatia
4. A Treatise on Heat: M.N. Saha & B.N. Srivastava (The Indian Press Pvt. Ltd., Allahabad), 1965.

**SEMESTER-III
PHYSICS**

**PAPER-B: OPTICS AND LASERS
(THEORY)**

Time: 3 Hours

Total Teaching Hrs: 45(3h/week)

Pass Marks: 35%

Marks: 35

Note : There should be 20% numericals in each paper.

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Interference of Light:

Superposition of light waves and interference, young's double slit experiment, Conditions for sustained interference pattern, Coherent sources of light, Interference pattern by division of wave front, Fresnel Biprism, Displacement of fringes, Change of phase on reflection, Interference in thin films due to reflected and transmitted light, non reflecting films, Newton's Rings. Michelson Interferometer.

11 Lectures

SECTION-B

Diffraction:

Huygen'sfresnel theory, half-period zones, Zone plate, Distinction between fresnel and fraunhoffer diffraction. Fraunhoffer diffraction at rectangular and circular apertures, Effect of diffraction in optical imaging, Resolving power of telescope in diffraction grating, its use as a spectroscopic element and its resolving power, Resolving power of microscope.

11 Lectures

SECTION-C

Polarization:

Plane Polarized light, Elliptically polarized light, wire grid polarizer, Sheet polarizer, Mault's Law, Brewster Law, Polarization by reflection, Scattering, Double reflection, Nicol prism, Retardation plates, Production Analysis of polarized light, Quarter and half wave plates.

11 Lectures

SECTION-D

Laser Fundamentals:

Derivation of Einstein relations, Concept of stimulated emission and population inversion, broadening of spectral lines, three level and four level laser schemes, elementary theory of optical cavity, Longitudinal and transverse modes. Components of laser devices, condition for laser action, types of lasers, Ruby and Nd:YAG lasers, He-Ne and CO₂ lasers construction, mode of creating population inversion and output characteristics, application of lasers –a general outline.

12 Lectures

Books Suggested:-

1. Fundamentals of Optics: F.A. Jenkins and Harvey E White, (Mcgraw Hill) 4th Edition, 2001.
2. Optics: Ajoy Ghatak, (McMillan India) 2nd Edition, 7th Reprint, 1997
3. Optics: Born and Wolf, (Pergamon Press) 3rd Edition, 1965.
4. Laser Fundamentals: W.T. Silfvast (Foundation Books), New Delhi, 1996.
5. Laser and Non-Liner Optics: B.B. Laud (New Age Pub.) 2002
6. Laser: Svelto, Plenum Press) 3rd Edition, New York

**SEMESTER–III
PHYSICS**

(PRACTICAL)

General Guidelines for Practical Examination: (4.5h/week)

- | | | |
|----|---|------------------|
| I. | The distribution of marks is as follows : | Marks: 30 |
| | i) One experiment | 15 Marks |
| | ii) Brief Theory | 5 Marks |
| | iii) Viva–Voce | 5 Marks |
| | iv) Record (Practical file) | 5 Marks |
- II. There will be one sessions of 3 hours duration. The paper will have one session. Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
- III. Number of candidates in a group for practical examination should not exceed 12.
- IV. In a single group no experiment be allotted to more than three examinee in any group.
1. To determine refractive index of glass and liquid using spectrometer.
 2. To determine the Cauchy's constants.
 3. To study the refractive index of a doubly refracting prism.
 4. To set up Newton's rings to determine wavelength of sodium light.
 5. To determine the wavelength by using plane diffraction grating (Use Hg source)
 6. To determine dispersive power of plane diffraction grating.
 7. To determine resolving power of a telescope.
 8. To determine resolving power of a grating.
 9. To measure an accessible (Horizontal and vertical) height using sextant.
 10. To measure inaccessible height by using sextant.
 11. Verify laws of probability distribution by throwing of similar coins.

SEMESTER–III

HOME SCIENCE

CLOTHING TEXTILES (PART–I)
(THEORY)

Time: 3 Hours
Periods/week: 6

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Equipments & supplies in clothing: Construction—their use & care

II. Sewing Machine:

- (a) Parts of Sewing Machine and its accessories
- (b) Common defects in sewing machine and their remedies
- (c) Care of Sewing Machines

SECTION–B

- I. Recording of Body measurements. Care to be taken while taking body measurement.
- II. Different methods of developing a design—Drafting, Pattern making, Draping (in brief) their advantages and disadvantages.

SECTION–C

- 1. Classification of textile fibers
- 2. Manufacture (in Brief) & properties of different fibers.
 - a) Cotton
 - b) Linen
 - c) Silk
 - d) Wool
 - e) Nylon
 - f) Polyester
 - g) Rayon Viscose & Acetate

SECTION–D

- 1. Application of colour on fabric Dyeing—simple dyeing of cotton Resist Dyeing—Tie Dye and Batik
- 2. Printing.
 - a) Block Printing.
 - b) Screen Printing.
 - c) Roller Printing
- 3. Methods of Laundry/Washing.

References Books:

	Book title	Author
1.	New Plan Cutting and Tailoring	Sharma, Shyam Sunder
2.	Fundamental of Textiles and their Care	Dhantiyagi, Shusheel Sharma
3.	Pradeep's Clothing Textiles and their Care	Dr. Rajwinder K. Randhawa
4.	Textbook of Home Science	Neelam Garewal
5.	Textiles Fibre to Fabric	Cogman, Bernard

SEMESTER-III**HOME SCIENCE****CLOTHING TEXTILES (PART-I)
(PRACTICAL)****Time: 4 Hours****Marks: 50****Periods/week: 6****Clothing Practical:** Make samples of the following:

- a) Tacking, hemming, buttonhole stitch, fasteners.
- b) Seams-counter seam, run and fell, French seam.
- c) Processes- continuous wrap, two piece placket opening, pleats, geathers into band, tucks.
- d) Embrodry-10 fancy embroidery stitches.

Drafting of the following:

- a) Childs bodice block.
- b) Sleeves- plain and puff sleeve.
- c) Collars-flat and raised peter pan, cape collar, baby collar.

Drafting and Stitching of:

- a) Bloomer
- b) Childs frock gathered / A Line Frock.

Textile Practical:

1. Testing of Cotton, Wool & Silk, Nylon by Burning test.
2. Simple house hold dyeing of cotton fabric 12"x12".
3. Preparation of an article of Tie and Dye.
4. Preparation of article of block printing.

Instructions for the Practical Examiner:

There will be one practical exam consisting of two parts i.e clothing and textiles.

The division of marks and time will be as follows:

Clothing- 2 hrs 30 min.

- a. Drafting and stitching of garment-10 marks
- b. Sample / Embroidery-5 marks
- c. File and scheme work-10 marks

Textiles Practical -1 hr 30 min

- a. Block printing / tie and dye-10 marks
- b. Identification of fibers-5 marks
- c. File and viva-10 marks

SEMESTER-III**COSMETOLOGY (VOCATIONAL)****PAPER-A
(THEORY)**

Time: 3 Hrs.
Periods/Week-6

Total Marks: 100
Theory Marks: 40
Practical Marks: 60

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A**1. Hair**

Composition and Structure of Hair
Division & Forms of Hair
Hair Growth & Regeneration
Disorders & Disease of the hair and scalp
PH scale with diagram

SECTION-B**2. Health and Diet**

Basic Introduction of nutrients Carbohydrates, Protein, Fat, Vitamin A, D, C & B Complex, Calcium, Iron, only their main functions related to skin and hair. Food Sources.

SECTION-C**3. Concept of Balanced Diet – 5 food groups principles of meal planning****SECTION-D****4. Overweight and Underweight causes and dietary management**
Role of Water for healthy skin

SEMESTER–III

COSMETOLOGY (VOCATIONAL)

(PRACTICAL)

Time: 4 Hrs
Periods/week: 6

Marks: 60

Content:

1. Hair Care

- a) Types of shampoos and procedure of shampoo
- b) Hair rinses and hair conditions
- c) Hair spa acc. to scalp
- d) Corrective hair and scalp treatment :
Treatment for dry, oily scalp, dandruff treatment, hair fall treatment with the help of steamer, vibrator, heat, high frequency

2. Hair Styling

- a) Basic Techniques and equipments used in styling
- b) Principle of Hair Design
- c) Shapes of Head, headlines, texture and density
- d) Different thermal hairstyles with the help of thermal equipments

SEMESTER-III
CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)

PAPER-A: KITCHEN SANITATION AND FOOD HYGIENE
(THEORY)

Time: 3 Hrs.
Pds-4 pds/week

Marks: 40

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Kitchen Planning: Size and type, Developing kitchen plan, designing kitchen - drainage, water supply, floors, walls, ceilings, ventilation and lighting and safety.

Storage: Location, types, sanitation, safety and security of stores.

Equipments: Classification, Selection, Material Used, Design, Installation Operation, Safety and Care.

SECTION-B

Dishwashing and Cleaning of Kitchen & Service Area: Process and Unit, Use of Water, Detergent and Abrasive, Sterilization & Disinfectant Products Method & Use, Sanitizers.

Safety at Work: Causes of Accident, Safety Procedure & Training.

Safety in Food Procurement, Storage, Handling & Preparation, Control of Spoilage, Safety of Left Over Foods.

SECTION-C

Hygiene of Food Handling During Receiving Storage, Preparation, Cooking, Serving, Holding, Cleaning and Disposal.

Personal Hygiene of Food Handlers - Dress, Grooming, Health & Habits.

Waste product handling: Planning for waste disposal. Solid wastes and liquid wastes

SECTION-D

Control of infestation – rodent, flies & cockroaches control, use of pesticides.

Food adulteration laws and standard in India.

Reference Book:

- 1) Mohini Sethi, Surjeet Malhan, Catering Management An Integrated Approach, New Age international (P) limited, New Delhi.

List of Book:

Sr. No.	Name of Book	Year	Author	Edition	Publisher
1	Food Science and Nutrition	2018	Sunetra Rodey	3 rd	Oxford University Press
2	Food production Operations	2011	Parvinder Bali	2 nd	Oxford University Press
3	Nutrition and Dietetics	2015	Shubhangini A. Joshi	4 th	McGraw- Hill Education
4	Foods- Facts and Principles	2001	N. Shukantala Manay	2 nd	New Age International, (P) Limited Publishers
5	Food Science	2014	B. Srilakshmi	6 th	New Age International, (P) Limited Publishers
6	Nutrition Science	2017	B. Srilakshmi	-	New Age International, (P) Limited Publishers
7	Dietetics	2014	B. Srilakshmi	7 th	New Age International, (P) Limited Publishers
8	Food Hygiene and Sanitation	2011	Sunetra Rodey	2 nd	McGraw Hill Education
9	Clinical Nutrition and Dietetics	2002	F P Antia	4 th	Oxford University Press
10	Food Science	2006	Sumati R. Mudambi	2 nd	New Age International, (P) Limited Publishers
11	Fundamentals of Foods, Nutrition and Diet Therapy	2007	Sumati R. Mudambi and M. V. Rajagopal	5 th	New Age International, (P) Limited Publishers
12	Advances in Diet Therapy : Practical Manual	2009	V. Vimla	1 st	New Age International, (P) Limited Publishers
13	A Text book of Food Nutrition and Dietetics	2009	Raheena Begum	3 rd	Sterling Publishers Pvt. Ltd
14	Exercise Physiology Fitness and Sports Nutrition	2016	B. Srilakshmi	1 st	New Age International, (P) Limited Publishers

SEMESTER-III**CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)
PAPER-B: QUANTITY FOOD PRODUCTION AND SERVICE
(THEORY)****Time: 3 Hrs.****Marks: 40****Pds-4 pds/week****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Aims and objectives of different food service outlets

(a) Commercial (b) Institutional

Foods recommended for use in canteen, lunchroom and kiosks.

SECTION-B

Menu planning, importance, factors, types A' La Carte and Table d'hôte, construction, writing and display.

Introduction to Indian Cuisine-North, South,East & West

SECTION-C

Food production process - collecting ingredients, weighing and measuring, preparation of food, Some large quantitycooking technique. Effective use of left over food.

Quality in food service - Quantitative, sensory and nutritional quality in brief.

SECTION-D

Food Service - Style of different types of service waiter, banquet, restaurant, room service, self service, buffet service, tray service, plate service.

Planning of service area, Table sizes and decor of service area.

Introduction of different Table Service Ware - Chinaware, Flatware and Cutlery, Glassware, Hollowware.

Reference Book:

1. MohiniSethi, SurjeetMalhan, Catering Management An Integrated Approach.
2. New Age International (P) Limited Publisher Jalandhar.
3. Food and Beverage Service - Text book by Manoj Kumar Yadav.

List of Book:

Sr. No.	Name of Book	Year	Author	Edition	Publisher
1	Food Science and Nutrition	2018	Sunetra Rodey	3 rd	Oxford University Press
2	Food production Operations	2011	Parvinder Bali	2 nd	Oxford University Press
3	Nutrition and Dietetics	2015	Shubhangini A. Joshi	4 th	McGraw- Hill Education
4	Foods- Facts and Principles	2001	N. Shukantala Manay	2 nd	New Age International, (P) Limited Publishers
5	Food Science	2014	B. Srilakshmi	6 th	New Age International, (P) Limited Publishers
6	Nutrition Science	2017	B. Srilakshmi	-	New Age International, (P) Limited Publishers
7	Dietetics	2014	B. Srilakshmi	7 th	New Age International, (P) Limited Publishers
8	Food Hygiene and Sanitation	2011	Sunetra Rodey	2 nd	McGraw Hill Education
9	Clinical Nutrition and Dietetics	2002	F P Antia	4 th	Oxford University Press
10	Food Science	2006	Sumati R. Mudambi	2 nd	New Age International, (P) Limited Publishers
11	Fundamentals of Foods, Nutrition and Diet Therapy	2007	Sumati R. Mudambi and M. V. Rajagopal	5 th	New Age International, (P) Limited Publishers
12	Advances in Diet Therapy : Practical Manual	2009	V. Vimla	1 st	New Age International, (P) Limited Publishers
13	A Text book of Food Nutrition and Dietetics	2009	Raheena Begum	3 rd	Sterling Publishers Pvt. Ltd
14	Exercise Physiology Fitness and Sports Nutrition	2016	B. Srilakshmi	1 st	New Age International, (P) Limited Publishers

SEMESTER-III

**CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)
PAPER-B: QUANTITY FOOD PRODUCTION AND SERVICE
(PRACTICAL)**

Time: 3 Hrs.
Pds-6 pds/week.

Marks: 20

Note:- paper will be set on the spot by the examiner.

Instructions for the Paper Setters.

- 1. Planning Menu: 5 Marks.**
- 2. Cooking 2 dishes from Menu: 10 Marks.**
- 3. Table Laying: 5Marks.**

- 1) Laying of table sets for different meals & Menus.
 - a) A' La Carte b) Table Hote c) Buffet
- 2) Napkin Folding.
- 3) Plan menu & cook recipe for lunch, High tea and Dinner party for special occasion.
- 4) Standardize recipe for bulk preparation. (at least for 20 person)
- 5) Daily and occasional cleaning of kitchen equipments, utensils counter, floor and cupboards.
- 6) Visit to Hotel / Canteen / Community / Kitchen / Café (2 Visits)

Note:- If there are more number of student then cafeteria can be started from this session.

SEMESTER–III

FASHION DESIGNING AND GARMENT CONSTRUCTION (VOCATIONAL)

FUNDAMENTALS OF TEXTILES (THEORY)

Time: 3 Hours
Periods/week: 3

Max. Marks: 100
Theory Marks: 40
Practical Marks: 60

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

- a) Introduction to Textiles and Its Importance in Fashion Designing
- b) Classification of Textile Fibers and Terminology–Fibre, Filament, Yarn, Fabric Grey Goods, Fiber Length, Elasticity, Evenness, Moisture Absorption, Fiber Strength

SECTION–B

Properties & Manufacturing Process of Natural Fiber

- a) Cotton
- b) Wool
- c) Silk

SECTION–C

Properties and Manufacturing Process of Artificial Fiber

- a) Nylon
- b) Rayon
- c) Spandex

SECTION–D

Brief Study of the Following Yarns:

- a) Classification of Yarns – Carded and Combed, Woolen and Worsted, Filament and Spun
- b) Simple, Novelty, Bulk/Textured

Reference Books:

Sr.no.	Book title	Author
1.	Pradeep's Clothing Textiles and their Care	Dr. Rajwinder K. Randhawa
2.	Guide to Fashion Sewing	Carwford, Conne Amaden
3.	Tie-dyed Textiles of India	Murphy, Veronica
4.	Handbook of Weaving	Murphy, W. S.

SEMESTER–III**FASHION DESIGNING AND GARMENT CONSTRUCTION (VOCATIONAL)****PATTERN MAKING AND GARMENT CONSTRUCTION
(PRACTICAL)**

Time: 5 Hours
Periods/week: 2x6

Marks: 60

Instructions for the Paper Setters:

- Q. 1 from Part-A carrying 20 marks.
- Q. 2 from Part-B carrying 30 marks
- Q. 3 from File and scheme 10 marks

PART–A**1. Pattern Making****I. Dart Manipulation by Flat Pattern (2-3 exercises under each heading)**

- a) Shifting of darts
- b) Combining darts
- c) Converting darts into gathers
- d) Converting darts into seam lines

II. Drafting and Adaptation

- a) Skirts-Basic Skirt, Peg Skirt, Pleated Skirt, Flared Skirt, Gathered With Yoke
- b) Tops-Cowl Neckline, Turtle Neckline

PART–B**2. Construction**

- I) Design and Construct Tops with – Cowl and Turtle Neckline
- II) Design and Construct an Adult Skirt
- III) Traditional Embroidery-Phulkari, Kashmiri

SEMESTER-III

**EARLY CHILDHOOD CARE AND EDUCATION (VOCATIONAL)
(THEORY)**

Time: 3 Hrs.
Lectures/week: 6

Maximum Marks: 100
Theory Marks: 60
Practical Marks: 40

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Objectives:-

1. To gain knowledge and insight regarding principles of early childhood care and education.
2. To develop the skills and techniques to plan activities in ECCE centers of different types.

SECTION-A

Need, Importance and objectives of Early Childhood Education.
Early childhood stimulation at home and school.

SECTION-B

Quality of home environment
Historical Prospective of early childhood education

SECTION-C

Contribution of Agencies to ECCE in India- ICDS-UNICEF, NCERT

Early Childhood Education Programs in India and Abroad
Essentials of Setting up Early Childhood Education Centers- Building and physical facilities, staff, size of class, supervision and curriculum

SECTION-D

Types of Preschool Programs -Kindergarten type, Montessori, Nursery, Open type, Pre basic, Balwadi, Anganwadi, Day care centers

SEMESTER–III

**EARLY CHILDHOOD CARE AND EDUCATION (VOCATIONAL)
(PRACTICAL)**

Time: 3 Hrs.
Lectures/week: 4

Marks: 40

Instructions for the Paper Setters:

Paper will be set on the spot by the examiner

Distribution of Marks

Written Practical Test:	10 Marks
Practical File:	5 Marks
Oral Examination:	5 Marks
Class Performance:	10 Marks
Article/Activity Material:	10 Marks

Course Contents:

A visit to a “model” early childhood educational centre to observe curriculum implementation, indoor and outdoor activities and equipments.

Preparation of curriculum calendar (for one academic session) daily time table and detailed activity plan (for each day).

Developing an educational kit for enhancing conceptual aspects among pre-school children.

Activities for enhancing language development in pre school children.

SEMESTER-III

FOOD SCIENCE AND QUALITY CONTROL (VOCATIONAL)

FSQC-5: FOOD PROCESSING AND PACKAGING

(THEORY)

Time: 3 Hours

Max. Marks: 75

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

1. Physical principles underlying food processing operations including thermal processing, ionising radiation, refrigeration, freezing, dehydration, etc.
2. Chemical principles in food processing, chemical changes in food that affect the texture, colour, flavour, odour, stability and nutritive quality during processing and storage.
3. Fats and Oils: Types and sources of fats and oils (animal and vegetable) Processing uses, storage, cost and nutritional aspects.
4. Sugar and Sugar Products: Different forms of sugar, (sugar, jaggery, honey syrup) manufacture, selection, storage and use preserves.
5. Salt types, uses in the diet.

SECTION-B

6. Convenience Foods. Tea, coffee, chocolate and cocoa powder.
7. Processing cost and nutritional aspects.
8. Fermentation technology, Enrichment and Fortification Technology. High protein food technology.
9. Quality control in food industry-methods of evaluation and control of the various aspects of quality of raw materials manufacturing process, the testing of finished products.

SECTION-C

10. Spices and flavour
11. Preservatives and additives.
12. Extruded foods.
13. Food Irradiation.

SECTION-D

14. Packaging of Foods.
15. Packaging function
16. Approaches to packaging development, Specification and Quality Control, Interaction of Food & Packaging.
 - Evaluation of Food Packages
 - Importance of Packages

- Packaging criteria, appearance protection, function cost, materials & forms of packaging.
- Packaging methods & performances.
- Packaging specification & control of packaging quality.
- Food & Food package interaction.
- Food packaging & laws
- Packaging evaluation-package life theory and testing packaging materials.
- Shelf life testing.

Recommended Books:

1. Technology of Cereal, Legumes and Oil Seeds – Chakrobarty S. Deor for IBH Pub.
2. Cereal Tech. – Kent.
3. Preservation of Fruits and Vegetables – Girdhari Lal.
4. Dairy Tech. – Sukumar De.
5. Waste Treatment.
6. Food Packaging Sacharow and Griffir Avi. Publising Co.
7. Packaging Management. Briston & Neill. Gower Press.
8. Food & Packaging Interaction. Hotchikess American Chemical Society.
9. Packaging for Climatic Protection Cains, Oswin Paine.

SEMESTER–III

FOOD SCIENCE AND QUALITY CONTROL (VOCATIONAL)

FSQC-6: FOOD PROCESSING & PACKAGING

(PRACTICAL)

Max. Marks: 25

List of Practicals:

1. Determination of physical characteristics of cereals.
2. Milling of wheat into flour.
3. Determination of wet & dry gluten contents.
4. Determination of free fatty acids in flour and rice bran.
5. Milling of rice.
6. Parboiling of rice.
7. Identification of packaging materials.
8. To estimate the shelf life of packaged food.
9. To determine grease resistance of packaging material.
10. Determination of water vapor transmission rate of various packaging materials.
11. To find out the porosity of tin plate.
12. To find out the tin coating weight.
13. To find out the uniformity and amount of wax on wax paper.
14. To see the chemical resistance of packaging materials.
15. Visits to various industries dealing with food packaging material like, paper board and metal.

SEMESTER–III
FINE ARTS
(DRAWING & PAINTING)
PAPER–A (THEORY)

Time: 3 Hrs.

Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Classical Sculptures:

- **The Guptas:**
- (A) **Mathura:**
 - (i) Standing Buddha
 - (ii) Vishnu
- (B) **Sarnath:**
 - (i) Seated Buddha
 - (ii) Buddha from Sultanganj

SECTION–B

2. Postclassical Sculptures:

- **Ellora:**
 - (i) Ravana shaking mount Kailasha
 - (ii) Abduction of Sita
- **Elephanta:**
 - (i) Trimurti
 - (ii) Marriage of Shiva and Parvati

SECTION–C

- **Mahaballipuram:**
 - (i) Descent of the Ganges
 - (ii) Mahisasurmardini

SECTION–D

3. Chola Bronzes:

- (i) Parvati
- (ii) Shiva Natraja
- (iii) Kali

Suggest Readings:

1. The Art Forger by Barbara A. Shapiro
 2. The Art Spirit by Robert Henri
 3. Vision and Art: The Biology of Seeing by Margaret S. Livingstone
 4. History of Art by H.W. Janson
 5. Wall and Piece by Banksy
 6. American Painting by Donald Letcher Goddard
 7. The Paintings Of Samuel Palmer by Raymond Lister
-

SEMESTER-III

**FINE ARTS
(DRAWING & PAINTING)**

**PAPER-B
(PRACTICAL)**

DESIGN 2D & 3D

Time: 5 Hrs.

Marks: 25

Work Load:

Theory	-	3 periods per week.
Practical	-	9 periods per week.
Total	-	12 periods per week.

Study of 2-dimensional and 3-dimensional designs based on Folk forms. Any folk motif with proper shading is a 2-D design and cardboard pasted on handmade sheet in form of various folk motifs is a 3-D design- this is only an example; any other materials can also be used to create 3-D.

Medium: Poster colours

Size: ½ Imperial

SEMESTER–III

**FINE ARTS
(DRAWING & PAINTING)**

**PAPER–C
(PRACTICAL)
HEAD STUDY (MALE/FEMALE)**

Time: 5 Hrs.

Marks: 25

Work Load:

Theory	-	3 periods per week.
Practical	-	9 periods per week.
Total	-	12 periods per week.

Rendering of *Head* (Male/Female head) from life or cast. Emphasis should be given on structure, volume, proportion, light, shade and texture in Monochromatic colour scheme.

Medium: Any medium

Size: ½ Imperial

Candidates will submit-

- (i) 5 sheets of each paper.
- (ii) Sketch book containing 50 sketches.

SEMESTER-III

GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL) (THEORY)

Time: 3 Hrs

M.Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

1. Introduction of Jewellery manufacturing :

- (i) Mark- making
- (ii) Piercing
- (iii) sawing
- (iv) Filling
- (v) Soldering
- (vi) Form making
- (vii) Engraving
- (viii) Acid etching

2. Materials use for Jewellery manufacturing.

3. Base metal Jewellery.

SECTION -B

4. Introduction of precious gemstones \ physical properties\characteristics

Precious gems-

**(i) Pearl (ii) Ruby, (iii) Diamond (iv) Emerald (v) Garnet (vi) Blue Sapphire
(vii) Yellow Sapphire (viii) Cat's Eye (ix) Coral.**

- Definition
- History
- Creation/mining
- Natural/synthetic/imitation/
- Availability/sources
- Factors effecting value
- Famous stones
- Lapidary work

SECTION –C

5. Introduction of semi-precious stones /characteristics and classification/physical properties Semi-precious gems :

(i) Topaz, (ii) amethyst , (iii) Agate,(iv) Citrine ,(v) Feldspar,(vi) lapis- lazuli

- History
- Mining
- Availability
- Substitute of precious gems

SECTION-D

6. Introduction to computer software dealing with Jewellery Design JEWEL-CAD 5.1

- (i) Working with database
- (ii) Introduction to copy toolbar
- (iii) Deform toolbar
- (iv) Curve toolbar

SEMESTER-III
GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL)
PRACTICAL

TIME: 5 Hours

M.Marks: 50

Creating design of a pendent, Broche, Armlet, etc using brass and copper wire with different techniques.

- (i) Twisting wire
- (ii) Wire wrapping
- (iii) Wire shaping
- (iv) Wire interweaving
- (v) Banding wire
- (vi) Wire mesh

SEMESTER–III
STILL PHOTOGRAPHY & AUDIO PRODUCTION (VOCATIONAL)

PHOTO JOURNALISM
(THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Scope of Photo Journalism. Importance of Picture & Magazine in News Program.

SECTION–B

2. Reporting through Photos. (News of Parliament Sports, Development Stories, Features and Interviewing etc).
3. Photo-Visualisation of Audience Tastes, Needs and Newsfall.

SECTION–C

4. Equipment for Photo-Journalism (Choice of right equipment i.e. Lens, Camera, Flash raw, Stock for a particular assignment).

SECTION–D

5. Introduction and Practice of Rapid Development Finishing, Drying.

Suggested Readings:

Sr. No.	Book Name	Author
1.	The Photographers Manual	John Frama
2.	Close-Up Photography	Johathan Hilton

SEMESTER–III
STILL PHOTOGRAPHY & AUDIO PRODUCTION (VOCATIONAL)

STILL PHOTOGRAPHY & CAMERA ACCESSORIES
(PRACTICAL)

Time: 6 Hours

Practical Marks: 50

Instructions for the Paper Setters:

1. The Paper will be set by the External Examiner on the spot considering the syllabus.
2. Creative Work on the part of the students is to be emphasized.
3. Technical Competence is expected. The students should also use Updated and Latest Techniques in his/her work.
4. Photographs clicked during examination are supposed to be submitted by the student in the form of C.D. or D.V.D. and can be evaluated by the Examiner on Computer or Laptop.
5. Extra weightage will be given for creative and professional approach.

Instructions for Students:

1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.
2. Students are not allowed to use previous clicked Photographs.
3. Sizes of photographs will be given by External Examiner as per requirement.

Course Contents:

1. Shutter types – Their limitations.
2. Circle of Confusion, its Effect on Sharpness.
3. Techniques of Photographing Action.
4. Aperture and its effect, Aberration, Resolution, Depth of Field, Depth of Focus.
5. Lenses/Optical Materials, Lens Coating, Plastics/Glass, Normal Standard, Tele Lens, Wide, Zoom, Micro, Macro Lens, Laws Governing Depth of Field.
6. Supplementary Lenses.
7. Basic Reprography / Digital Camera.
8. Flash-type, Working, Exposure.
9. Exposure: Method of Estimations, Types of Exposure Meters & their Comparison, Reciprocity Failure.
10. Types of Films & their Characteristics Filters: Types, Use, Optical Limitation, Filter Factor.

Suggested Readings:

Sr. No.	Book Name	Author
1.	Digital Photography Special Effects	Michael Freeman
2.	The Essential Photography Manual	Tim Daly
3.	The Everything Digital Photography	School

**SEMESTER–III
APPLIED ART**

**ART APPRECIATION & ADVERTISING
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 50
Practical Marks: 50**

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Introduction to Advertising.
2. Types of Advertising.

SECTION–B

3. Different Medias of Advertising.
4. Brochure (Pamphlet, Handbill, Folder, Leaflet, Catalogue, Booklet).

SECTION–C

5. Newspaper v/s Magazine.
6. Poster and its types.

SECTION–D

7. Scope of Commercial Art.
8. Commercial Art and Society.
9. Qualities of a Layout.

Suggested Readings:

Sr. No.	Book Name	Author
1.	A Handbook of Advertising Techniques	Tommy Harrison
2.	Ogilvy on Advertising	David Ogilvy
3.	Advertising as a Career	Subrate Banerjee

**SEMESTER–III
APPLIED ART**

LAYOUT (PRACTICAL)

Time: 6 Hours

Marks: 50

Medium: Layout & Illustration

Size:

Newspaper: Columns x Cms

Magazine: 8 1/2" x 11"

Illustration: ¼ imperial

Instructions for the Paper Setters:

1. The paper will be set by the Examiner on the spot considering the syllabus.
2. Imaginative and Creative work on the part of the students is to be emphasized. Imagination and Technical competence is expected. The students should also use updated and latest techniques in his/her work.
3. Students will have to complete Five Projects during the course.
4. Students can use Magazines/Books/Newspapers as reference for their Class Work & Examination.
5. Topic for the Examination will be set by the external examiner on the spot after consultation with the Class Teacher.
6. Extra weightage will be given for creative and professional approach.

Instructions for Students:

1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.

Course Contents:

Prepare Commercial and Educational Layouts

Black & White for Newspaper & Coloured (Multicolour) Layout for Magazine.

Prepare Illustration based on Stories, Drawing of Objects, Birds and Animals, different scenes etc.

Note: Limited Reference while preparing rough visual is allowed

**SEMESTER–III
SCULPTURE**

(THEORY)

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 50
Practical Marks: 50**

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

(1) Indus Valley Sculptures and seals.

SECTION–B

(2) Mauryan Dynesty (Sculptures and Pillars)

SECTION–C

(3) Introduction of Stupa, Vihara and Chaitya.

SECTION–D

(4) Shunga Dynesty (Bharhut Stupa)

(5) Sanchi Stupa

Books Recommended:

1. S.K. Sarswati: A Survey of Indian Sculpture.
2. Stella Krmisch: Indian Sculptures.
3. B.M. Barua: Bharhut.

SEMESTER–III
SCULPTURE

(PRACTICAL)

Time: 6 Hrs.

Marks: 50

- (1) Low Relief Sculpture in Terracotta (Total No-1 Based on Birds/Animals/ Human Figures (Min Size 8x8 inches)
- (2) Head study in clay, Modeling from life Size, these works should be produced in plaster of pairs (Total Number of works -2)

Books Recommended:

1. S.K.Sarwati A survey of Indian Sculptures.
2. Stella Krmisch Indian Sculptures.
3. Roy C. Craven Indian Art A Concise History
4. S.M Asgar Ali Kadvi Moorti Kala ka Itihas
5. Benjamin Rowland The Pelican History of Art
6. Dr. G.K. Aggarwal Shilpa Drashan.
7. Dr Gyacharu Tripathi Prachin Bharat Ki Kala

**SEMESTER–III
MUSIC (VOCAL)
(THEORY)**

Theory: 3 Hours
Practical: 20 Min. for each student

Total Marks: 100
Theory Marks: 50
Practical Marks: 50

Teaching Work load:
Theory: 3 Periods per week

Practical: 9 Periods per week

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Instructions given to the examiners are as under:

1. There should not be more than fifteen students in a batch for practical examination.
2. Harmonium will only be allowed as Base Instrument in Vocal Music (Practical).
3. While sending the syllabus to paper setter in theory the syllabus prescribed for the practical paper should also be sent.
4. Candidate can take both subjects i.e. Vocal & Instrumental Music as elective subject.
5. Candidate can take Tabla subject along with Music Vocal or Music Inst.

SECTION–A

1. Historical Development of Indian Music during 14th to 17th century with special reference to Akbar Period.
2. Definition and explanation of the following Musical Terms: Alap, Bol Alap, Bol Baant, Upaj.

SECTION–B

3. Detailed Study of Tanpura and Sahayak Naad.
4. Varieties of Tanas.

SECTION–C

5. Description and notation of the following Ragas: Bhimplasi, Des and Vrindavani Sarang.
6. Description and notation of the following Talas: Ektal and Sooltal.

SECTION–D

7. Contribution and Life Sketches of the following musicians: Bhai Samund Singh and Bade Gulam Ali Khan.
8. Salient features of Kirtan Chaunkis in special context of Gurmat Sangeet.

Books Recommended:

1. Bharatiya Sangeet Ka Itihaas, Sharat Chandra Paranjpay.
2. Rag Parichya Part – I, II, and III by Shri Harish Chander Srivastava.
3. Sangeet Shastra Darpan Part – II (Punjabi) published by PunjabiUniversity, Patiala.
4. Sangeet Vishard, Sangeet Karayalya, Hathras.
5. Sangeet Shastra Darpan, Shanti Govardhan.
6. Hamare Sangeet Rattan, Sangeet Karyalaya, Hathras.
7. Kramik Pustak Malika by Vishnu Narayan Bhathkhande.
8. Sangeet Nibandhavli, Dr. Gurnam Singh, published by PunjabiUniversity, Patiala.
9. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh.
10. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, 422, 15/A, Chandigarh.
11. ‘The great Artists of Punjab’ by Balwant Gargi, GNDU Publications, Amritsar
12. ‘Punjab de Parsidh Ragi Rababi’ by Balbir Singh Kanwal, Singh Brothers, Amritsar.

SEMESTER–III
MUSIC (VOCAL)
(PRACTICAL)

Time: 20 Minutes

Marks: 50

1. Ability to play five alankars on the Harmonium based on the Kafi Thata.
2. One Vilambit Khayal in any of the Ragas prescribed in the course with simple Alaps and Tanas.
3. One Drut Khayal in each of the following Ragas with simple Alaps and Tanas: Bhimplasi, Des and Vrindavani Sarang.
4. One Lakshan Geet in Prescribed Raga.
5. One Dhrupad with Dugan Laykari in any of the prescribed Ragas.
6. Ability to recite Ektal and Sooltal showing Khali Tali with hand motion in Ekgun, Dhugan Layakaries.
7. Brief Knowledge of following Ragas: Dhnashri, Sorath and Madhmaad Sarang.
8. Ability to play theka of Rupak Tala on tabla.
9. Ability to play Dhun of any Folk Song of Punjab on Harmonium/any instrument.

Books Recommended:

13. Bharatiya Sangeet Ka Itihaas, Sharat Chandra Paranjpay.
14. Rag Parichya Part – I, II, and III by Shri Harish Chander Srivastava.
15. Sangeet Shastra Darpan Part – II (Punjabi) published by PunjabiUniversity, Patiala.
16. Sangeet Vishard, Sangeet Karayalya, Hathras.
17. Sangeet Shastra Darpan, Shanti Govardhan.
18. Hamare Sangeet Rattan, Sangeet Karyalaya, Hathras.
19. Kramik Pustak Malika by Vishnu Narayan Bhathkhande.
20. Sangeet Nibandhavli, Dr. Gurnam Singh, published by PunjabiUniversity, Patiala.
21. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh.
22. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, 422, 15/A, Chandigarh.

SEMESTER–III

MUSIC (INSTRUMENTAL) (THEORY)

Time: 3 Hours

M.Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Historical development of Indian Music during medieval period i.e. from 12th to 15th century.
2. Detailed study of “Naad”
3. Brief knowledge of the following:– Meend, Ghaseet, Kan, Krintan, Khatka.

SECTION–B

4. Techniques and Methods of tuning of Sitar.
5. Life Sketch and Contribution of Ustad Inayat Khan & Ustad Abdul Halim Zafar Khan.

SECTION–C

6. Description and notation of the prescribed Ragas: Bhimplasi, Asawari and Des.
7. Brief knowledge of the following Ragas: Kafi, Jaunpuri and Sorath
8. Brief knowledge of the following Talas: Ektal & Sooltal.

SECTION–D

9. Classification of Instruments used in Gurmat Sangeet.
10. Contribution of Guru Arjun Dev Ji towards Indian Music.

Books Recommended:

1. Rag Parichay (Part 1,2,3) by H.C. Shrivastav.
2. Sangeet Shastar Darpan (Part I & II) by Shanti Govardhan.
3. Sangeet Visharad, Sangeet Karyala Hathras.
4. Hamare Sangeet Ratan, Luxmi Narayan Garg, Sangeet Karayalaya, Hathras
5. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh
6. Sangeet Subodh by Dr. Davinder Kaur.
7. Punjab ki Sangeet Parampara by Geeta Paintal.
8. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, Chandigarh.
9. Sangeet Roop by Dr., Davinder Kaur, Patiala.
10. Bhartiya Sangeet ka Itihas by Umesh Joshi.
11. Bhartiya Sangeet ke Vadhya, Dr. Lal Mani Mishra.
12. Nibandh Sangeet, Sangeet Karyala, Hathras.

SEMESTER–III
MUSIC (INSTRUMENTAL)
(PRACTICAL)

Time: 20 Minutes

M.Marks: 50

1. Ability to play ten Alankars on Sitar in the swaras of Kafi Thaata.
2. One Maseetkhani Gat in any of ragas prescribed in the Course. (Bhimplasi, Asawari and Des)
3. One Razatkhani Gat in each of the prescribed raga with Toras and Jhaala.
4. Ability to recite on hand, the Talas, Ektal & Sooltal in Ekgun & Dugun Layakarais.
5. Ability to play theka of Rupak Tala on Tabla.
6. Ability to sing a Cinematic song with any instrument.
7. Brief Knowledge of the following Non–detailed Ragas: Kafi, Jaunpuri and Sorath.

SEMESTER-III

**INDIAN CLASSICAL DANCE
(THEORY)**

Time: 3 Hours
Periods/week: 3

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

1. Study of Tandava and Lasya.
2. Knowledge of characteristics of Kathak Nritya.
3. Study of the Kathakali Dance with its historical background, style costumes and music etc.

SECTION-B

4. Knowledge of Samyukta Hastas according to Abhinaya Darpan with their uses in Dance.
5. Knowledge of the Folk Dance of Uttar Pradesh
6. Biography and contribution of the following Dance Gurus in their respective field of specialization.
 - i) Uday Shankar
 - ii) Shambhu Maharaj

SECTION-C

7. Essay on:
 - i) Relation of Dance with other fine arts.
 - ii) Dancing: A Door to Devine
8. Notation of:

(i) Ektaal (Matra-12)

- a) Tatkar in Thah, Dugun & Chougun Layakaries.
- b) Thaat- 2
- c) Tehai-1
- d) Amad-1
- e) Salami-1
- f) Tora-2
- g) Paran-1
- h) Chakardar Paran -1
- i) Kavita-1

SEMESTER–III

**INDIAN CLASSICAL DANCE
(THEORY)**

(ii) Sooltaal (Matra-10)

- a) Tatkar in Thah, Dugun & Chougun Layakaries.
- b) Thaat- 2
- c) Tehai-1
- d) Amad-1
- e) Salami-1
- f) Tora-2
- g) Paran-1
- h) Chakardar Paran -1
- i) Kavita-1

SECTION–D

9. Description and Notation of the following Talas in Thah, Dugun, Tigunand Chaugun layakaries:

- (i) Ektaal (ii) Sooltaal (iii) Choutaal.

10. Notation of Nagma in:

- (i) Ektaal (ii) Sooltaal

Books Recommended:

1. Kathak Nritya Ka Prichey, Subashni Kapoor, Radha Publications, New Delhi, 1997.
2. Kathak Soundaryatmak Shashtriya Nritya, Shikha Kharey, Knishka Publishers, New Delhi, 2006.
3. Atihasik Pripeksh Mein Kathak Nritya, Maya Taak, Knishka Publishers, New Delhi, 2005.
4. Nibandh Sangeet, Laxmi Narayan Garg, Sangeet Karyalaya, Hathras, 2004.
5. Kathak Nritya Shiksha Part-1, Dr. Puru Dadhich, Bindu Prakashan, Ujjain (MP)

SEMESTER-III

INDIAN CLASSICAL DANCE (PRACTICAL)

Time: 20 Minutes
Periods/week: 9

Marks: 50

Instructions for Examiner: The Examiner will set practical paper on the spot.

1. Ektaal (Matra-12)

- a) Tatkar in Thah, Dugun & Chougun Layakaries.
- b) Thaat- 2
- c) Tehai-1
- d) Amad-1
- e) Salami-1
- f) Tora-2
- g) Paran-1
- h) Chakardar Paran -1
- i) Kavit-1

2. Sooltaal (Matra-10)

- a) Tatkar in Thah, Dugun & Chougun Layakaries.
- b) Thaat- 2
- c) Tehai-1
- d) Amad-1
- e) Salami-1
- f) Tora-2
- g) Paran-1
- h) Chakardar Paran -1
- i) Kavit-1

3. Practical demonstration of two Gat Nikas

4. Padhant of all the Practical material mentioned above.

5. Ability to demonstrate Theka of Ektaal, Choutaal and Sooltaal by hand in Ekgun, Dugun, and Chaugun layakaries.

6. Practical demonstration of Samyukta Hastas according to Abhinaya Darpan.

7. Ability to play Theka of Ektaal on Tabla.

8. Ability to sing A Bhajan by Harmonium.

Books Recommended:

- 1. Kathak Nritya Ka Prichey, Subashni Kapoor, Radha Publications, New Delhi, 1997.
- 2. Kathak Soundaryatmak Shashtriya Nritya, Shikha Kharey, Knishka Publishers, New Delhi, 2006.
- 3. Atihasik Pripeksh Mein Kathak Nritya, Maya Taak, Knishka Publishers, New Delhi, 2005.
- 4. Nibandh Sangeet, Laxmi Narayan Garg, Sangeet Karyalaya, Hathras, 2004.
- 5. Kathak Nritya Shiksha Part-1, Dr. Puru Dadhich, Bindu Prakashan, Ujjain (MP)

SEMESTER–III**TABLA
(THEORY)****Time: 3 Hours****Marks: 50****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Define and Explain the following terms:
 - a. Tabla Vadak
 - b. Sangat Kar
 - c. Theka
 - d. Tihai

2. Detailed knowledge of Gharanas of Tabla and Pakahawaj :
 - a. Delhi
 - b. Punjab
 - c. Ajarara

SECTION–B

3. Life Sketch:
 - a. Pt. Kanthe Maharaj
 - b. Pt. Anokhe Lal
 - c. Ahmed Jaan Tharikwa

4. Essay on the place of Tabla in Khayal Gayan Shally.

5. Define Paran. Explain Chakardar Paran in detail with notation of one Chakardar Paran in Rupak Tal.

SEMESTER–III

TABLA

SECTION–C

6. Use of Tabla in Music Therapy.
7. Notation and description of the following:–
 - a. Rupak: Laggis (three), Mukhra (two), Tihai (two), Chakardar Paran (One).
 - b. Jhap Tal: Two Kayadas with five Paltas each, Two Tukara's, Two tihais
 - c. Ekltal: One Peshkar, One Paran, One Chakardar Tihai.

SECTION–D

8. Define the following terms-Jori, Shaan, Sath, Mukaa in context to Gurmat Sangeet.
9. Comparative study of the following Taals:–
Jhaptal-Sooltal, Ektal-Chaartal

Books Recommended:

1. Sangeet Visharad: Basant, Sangeet Karyalaya Hathras, 2004.
2. Tal Prabandh: Pt. Chhote Lal Misher Knishka Publisher, New Delhi, 2006.
3. Bharti Sangeet Vadhya: Lal Mani Mishra, Bhartiya Gayan Peeth Parkashan, 1973.
4. Hamare Sangeet Rattan: Sangeet Karyalaya Hathras, 1978.
5. Tal Martand: Sataya Narayan Vashishath, Sangeet Karyalaya Hathras, 1994.
6. Tal Parichay Part –I to IV, Harish Chandra Srivastav, Sangeet Karyalaya, Hathras.
7. Tal Prakash, Bhagwat Saran Sharma, Sangeet Karyalaya, Hathras.
8. Sangeet Mein Tal Vadon Ki Upyogita, Chitragupta, Radha Publication, New Delhi, 1992.

SEMESTER – III**TABLA
(PRACTICAL)****Time: 20 Minutes****Marks: 50**

1. Tala Prescribed: Rupak, Jhaptal, Ektal.
2. Rupak: Laggis (three), Mukhra (two), Tihai (two), Chakardar Paran (One).
3. Jhap Tal: Two Kayadas with five Paltas each, Two Tukara's, Two tihaais
4. Ekltal: One Peshkar, One Paran, One Chakardar Tihaai.
5. Ability to play Nagma on Harmonium in Jhaptal.
6. Ability to play Theka of Sooltaal.
7. Practice of playing the above Taals with Vocal and Instrumental performance.
8. Tuning of Tabla.
9. Ability to play Saath Ke Bol of Gurmat Sangeet tradition.

Books Recommended:

1. Sangeet Visharad: Basant, Sangeet Karyalaya Hathras, 2004.
2. Tal Prabandh: Pt. Chhote Lal Misher Knishka Publisher, New Delhi, 2006.
3. Bharti Sangeet Vadhya: Lal Mani Mishra, Bhartiya Gayan Peeth Parkashan, 1973.
4. Hamare Sangeet Rattan: Sangeet Karyalaya Hathras, 1978.
5. Tal Martand: Sataya Narayan Vashishath, Sangeet Karyalaya Hathras, 1994.
6. Tal Parichay Part –I to IV, Harish Chandra Srivastav, Sangeet Karyalaya, Hathras.
7. Tal Prakash, Bhagwat Saran Sharma, Sangeet Karyalaya, Hathras.
8. Sangeet Mein Tal Vadon Ki Upyogita, Chitragupta, Radha Publication, New Delhi, 1992.

SEMESTER-III
COMPUTER SCIENCE
COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS
(THEORY)

Time: 3 Hours
4 Hours/week

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Introduction:

Numerical methods, Numerical methods versus numerical analysis, Errors and Measures of Errors.

Non-linear Equations, Iterative Solutions, Multiple roots and other difficulties, Interpolation methods, Methods of bisection, False position Method, Newton Raphson-method.

SECTION-B

Simultaneous Solution of Equations, Gauss Elimination Method Gauss Jordan method. Gauss Siedel Method, Matrix Inversion Method.

SECTION-C

Interpolation and Curve Fitting, Lagrangian Polynomials, Newtons Methods: Forward Difference Method, Backward Difference Method Divided Difference Method.

Numerical Integration and Different Tryaperzoidal Rule, Simpson's 1/3 Rule Simpson's 3/8 Rule.

SECTION-D

Numerical differentiation by Polynomial Fit Statistical Techniques

Measure of Central Tendency, Preparing frequency distribution table, Mean Arithmetic, Mean geometric, Mean harmonic, Mean median Mode.

Measure of dispersion, Skewness and Kurtosis Range, Mean deviation, Standard deviation, co-efficient of variation, Moments Skewness Kurtosis.

Correlation Bivariate Distribution Multivariate distribution.

Regression B.C., Linear Regression, Multiple Regression.

Trend Analysis least square fit linear trend, Non-linear trend

$Y=axb$

$Y=abx$

$Y=acx$

Polynomial fit: $Y=a+a_1X+a_2X^2+a_nX^n+n$

Books Recommended:

- 1 B.S. Grewal: *Numerical Methods for Engineering*, Sultan Chand Publications.
- 2 V. Rajaraman: *Computer Oriented Numerical Methods*, Prentice Hall of India Private Ltd., New Delhi.

100

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Batch 2021-24)
(Faculty of Engineering & Technology)

**SEMESTER–III
COMPUTER SCIENCE**

**COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS LAB.
(PRACTICAL)**

Marks: 25

2 Hours/week

Practical based on Computer Oriented Numerical and Statistical Methods

SEMESTER-III**INFORMATION TECHNOLOGY (VOCATIONAL)****OOPS Using C++
(THEORY)**

Time: 3 Hours
4 Hours/week

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Evolution of OOP, OOP Paradigm, Advantage of OOP, Characteristics of the object oriented language-objects, classes, Inheritance, Reusability, User Defined data types, Polymorphism and operator overloading. Identifiers and Keywords, Constants, c++ operators, type conversion, variable Declaration, Statements and Expressions,

SECTION-B

Input and output, conditional expression, loop statements, breaking control statements. Defining a function, types of functions, storage class specifiers, recursions.

SECTION-C

Arrays, structures, pointers and structures, unions, classes, member, functions, objects, arrays of class objects, pointer and classes, constructors, destructors, inline member functions, static class member, friend function, dynamic memory allocation.

SECTION-D

Inheritance, single inheritance, types of base classes, type of derivations, multiple inheritance, container classes, member access control, Functions overloading , operator overloading, polymorphism, virtual functions, pure virtual functions, opening and closing of files, Stream State member functions.

References:

- 1 C++; A Beginner's Guide by "Schildt, Herbert", Edition 2002, McGraw Hill.
- 2 Turbo C++ by "Lafore Robert", Edition First, 1991, Reprint, 2007, Galgotia Publication.
- 3 Bruce Eckel, "Thinking in C++", First Edition.
- 4 Let us C++, "Yeshwant Kanetkar", First Edition, 2006, BPB Publication.

102

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Batch 2021-24)
(Faculty of Engineering & Technology)

SEMESTER–III

INFORMATION TECHNOLOGY (VOCATIONAL)

**OOPS Using C++
(PRACTICAL)**

Marks: 25

4 Hours/week

Practical based on OOPS Using C++

SEMESTER–III
COMPUTER MAINTENANCE (VOCATIONAL)

MICROPROCESSOR & ASSEMBLY LANGUAGE
(THEORY)

Time: 3 Hours
4 Hours/week

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Introduction to Micro Computer System: Microprocessor Definition, Evolution, Microprocessor as a CPU, Single chip Micro Computers, Organization of a Micro Processor Based System.

8-Bit Microprocessor: Introduction of 8085, ALU (Timing & Control Unit, Registers, Data & Address Bus, Pin Configuration, Intel 8085, Instruction), Instruction Cycles (Fetch Operation, execute Operation, Machine Cycle & State, Instruction & Data Flow), Timing Diagram (Timing Diagram for OP Code, Fetch, Cycle, Memory Read, I/O Read Memory and I/O write).

SECTION–B

Interfacing I/O Devices: Basic Interfacing Concepts, Interfacing, Output Display Interfacing Output Devices, Memory Mapped I/O.

Instruction Set of Intel 8085: Introduction Instruction & Data Format, Addressing Modus, Status Flags, Intel 8085 Instruction.

SECTION–C

Peripheral Devices & their Interfacing: Memory & I/O Interfacing, Data Transfer Schemes, Interrupt of Intel 8085, Programmable DMA Controller, Programmable Interrupt Controller, Intel 8529.

SECTION–D

16-Bit Microprocessor: Intel 8086/8088 pin Diagram, Architecture, Minimum & Maximum Modes, Bus Cycles, Memory Bus Status Codes, Memory Control Signals, Read/Write Cycle.

I/O Interface of 8086/8088 Microprocessor: Introduction, Types of I/O, Isolated I/O Interfaces, I/O Data Transfers, I/O Instruction, I/O Bus Cycles, I/O Hand Shaking Memory Mapped I/O. 8237A Programmable DMA Controller.

Assembly Language Programs Using 8085 Instructions

References:

1. B. Ram: Fundamental of Microprocessor & Micro Computers, Dhanput Rai, 5th Edition, 2001.
2. R.S. Gaonkar: Microprocessor Architecture for 8085, 3rd Edition, PRI, 1997.
3. Avtar Singh: 8088 & 8086 Microprocessor, Prentice Hall, 2002, 6th Edition.

SEMESTER–III**COMPUTER MAINTENANCE (VOCATIONAL)****(PRACTICAL)****Marks: 25****2 Hours/week****List of Practicals Based on Microprocessor & Assembly Language**

- 1 To study the architecture of 8088 microprocessor.
- 2 To study the addressing modes of 8086.
- 3 To add two binary numbers each of 16-bit long.
- 4 To add two binary numbers each of 8-bit long.
- 5 To find maximum number in the given string (16 bytes long) and store it at location 0510.
- 6 To sort a string of a number of 8-bytes in descending order.
- 7 To multiply an ASCII string of 8 number by a single ASCII digit.
- 8 To divide a string of unpacked ASCII digits.

SEMESTER–III

**COMPUTER APPLICATIONS (VOCATIONAL)
OPERATING SYSTEM
(THEORY)**

**Time: 3 Hours
4 Hours/week**

**Max. Marks: 100
Theory Marks: 75
Practical Marks: 25**

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

- 1 What is an Operating System - Evolution of OS Machine Language, Assembly, Compiler, Interpreter.
- 2 Types of Operating Systems with Examples
 - a) Single User Systems
 - b) Multi User Systems : Unix, Xenix, Vax/VMS.

SECTION–B

- 3 Functions of Operating System
 - a) Memory Management (Fixed Sized partition, Variavle Sized Partition, Dynamic Memory Management with Reallocation Technique, Paging Demand Paging Techniques).
 - b) CPU Management (For come First served, Shortest Job First, Round Robin Policy).
 - c) File Management.
 - d) I/O Device Management.
 - e) Command Interpreter.
 - f) Data Management.
 - g) Programme Developing Tools.
 - h) Time Sharing.
 - i) Security.
 - j) Communication
- 4 Booting a System.

SECTION–C

- 5 Features and Benefits of Unix.
 - a) Unix System (Multi-programming, time-sharing, multitasking).
 - b) Components of Unix (Kernel, Shell).
 - c) UNIX file system (Data Block, list, super block, boot block).
 - d) Types of Files (Ordinary, Directory and Special Files).
 - e) Types of users in UNIX - levels of users (0-2).

SEMESTER-III
COMPUTER APPLICATION (VOCATIONAL)
OPERATING SYSTEM (THEORY)

SECTION-D

Login and Logout from Unix Session.

Types of Shells (Bourne, c-shell, r-shell).

Shell as a command inte, clear.

Simple Directory and File Commands Cat, is, in, chmod, mail, who, whoami, cal, pwd, date,
ps, mkdir, cd, rmdir, rm, tput, clear.

Piping, filters, batch processing, shell programming (echo, read, case constructs)

Editors (vi): Commands for opening, inserting, modifying, deleting and saving files.

References:

1. "UNIX Basics", Ian Darwin TCP Informatics January, 2005.
2. "Basics of Os Unix and Shell Programming", Isrd, Tata McGraw-Hill Education, 01-Aug-2006.
3. "UNIX in a Nutshell": System V Edition: A Desktop Quick Reference for System V Release 4 and Solaris 2.0 by Daniel Gilly, The staff of O'Reilly Media, O'Reilly Media Inc.

SEMESTER–III
COMPUTER APPLICATION (VOCATIONAL)
OPERATING SYSTEM
(PRACTICAL)

Marks: 25

2 Hours/week

Practical based on Operating System

SEMESTER-III
AUTOMOBILE MAINTENANCE (VOCATIONAL)
(THEORY)

Time: 3 Hours

Periods per week Theory: 6

Max. Marks: 100

Theory Marks: 50

Practical Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note :

Question paper should be set strictly according to the syllabus and preferably in Punjabi. The language of the paper should be straight and simple Punjabi.

Orientation of the Course:

SECTION-A

Automatic Electrical Systems: Basic Automotive Circuits, Starting motor, Starting Devices, Bendix starting Drive, Over running clutch drive, Solenoid shaft systems, Starting motor trouble shooting.

SECTION-B

Generator: Generator principles, Generation of Alternating currents, Generation of direct current, Generator construction, generator output control, Cut out relay, Regulator, Alternator type generator, Generating systems trouble shooting.

SECTION-C

Ignition Systems: Introduction, Qualities of a good ignition system, Battery ignition system, Components of battery ignition system, Ignition coil, Condenser, Contact breaker, Distributor

SECTION-D

Ignition Advance: Methods of ignition advance, Spark plug, Classification of Spark Plugs, Spark Plug Gap, Magneto Ignition System, Rotating Armature Type, Rotating magnet type, Low and high tension types, Special type of magneto, Ignition System trouble shooting.

References:

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

SEMESTER-III**AUTOMOBILE MAINTENANCE (VOCATIONAL)****LAB – I (PRACTICAL)****Time: 3 Hours****Marks: 50****Periods per week: Practical: 4 Hrs.****Distribution of Marks**

Three visits to Motor Workshop	–	10 Marks
Oral Examination	–	10 Marks
Written Test	–	10 Marks
Test of Workshop Jobs	–	10 Marks
Identification of Workshop Tool	–	5 Marks
Scale Instrument Readings	–	5 Marks

1. Self Stater opening from the Voh and Refitting
2. Dynmo/Alternator Dismantling and Assembling.
3. Ignition Timing with the Engine.
4. Engine fault Diagonising.

SEMESTER-III
REFRIGERATION & AIR CONDITIONING (VOCATIONAL)
(THEORY)

Time: 3 Hours

Marks: 50

Teaching Hours: 6

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Compressors: Introduction, Types Hermetic, Semi Hermetic open compressors. Centrifugal & Rotary Compressors: construction features and volumetric Efficiencies. Multicylinder Compression & Capacity control.

Compressor Lubrication: Methods of Lubrication & the properties of a Lubricating oil
Identifications of sources of problem in operation Value failure, Shaft Seals 3- way Values cylinder to head gascuts.

SECTION-B

Condensers: Definition, Basic Principle, Types of Condenser: Air cooled Condenser, Water Cooled Condenser, Evaporative Condenser and their Constructional features. Comparison between Waters & Air cooled condenser & their Advantages & disadvantages.

SECTION-C

Cooling Towers: Definition, types: natural & Mechanical Draft, cooling pond, shell & tube shell of coil chillers. Fouling & de-scaling of condensers. Brine System.

Expansion Devices: Capillary Tube, Constant Pressure, Thermo Static Exp. Values, Sizing of Capillary. Standard Sizes, testing & adjustment of expansion devices. High & Low sides float value. Refrigerant receivers. Dryers Filters.

SECTION-D

Refrigeration & Air Conditioning System Practice: Piping layout Selection of pip material & size for various Refrigerant, Methods of joining, flaring & brazing System, evacuation, departation, charging balancing, leak testing, Use of Solenoid values pressure equalizers.

List of Books Recommended:

Name of Book	Author	Publisher
Refrigeration & Air Conditioning	S.C. Arora	Dhanpat Rai
Refrigeration & Air Conditioning	Dowkundwar Khurmi	Katson Publication
Refrigeration & Air Conditioning	Sarao, Gaabi Singh	Satya Prakashan.

SEMESTER-III**REFRIGERATION & AIR CONDITIONING (VOCATIONAL)****PRACTICAL: LAB-II****Time: 2 Hours****Marks: 50****Period Per week Practical: 4****List of Experiments:**

1. To Study the various control devices e.g. Thermostat, Relays & dryers etc.
2. To Study the vapour compression System.
3. To assemble & Operate a small vapour compression system.
4. To Study an electrolux Refrigerator.
5. To Study the Window Type Air Conditioner, Split Type air Conditioner.
6. To Study Ammonia-Water Plant.

SEMESTER-III

**INFORMATION TECHNOLOGY SPECILIZATION SOFTWARE DEVELOPMENT
(VOCATIONAL)**

SOFTWARE ENGINEERING (THEORY)

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

The students can use only Non-Programmable & Non-Storage Type Calculators.

SECTION-A

1. **Introduction to Software:** Definition, Software characteristics, Software components, Software Applications.
2. **Introduction to Software Engineering:** Definition, Software Engineering Paradigms, waterfall method, prototyping, interactive Enhancement, The Spiral model, Fourth Generation Technique.

SECTION-B

3. **Software Metrics:** Role of Metrics and measurement, Metrics for software productivity and Quality.
4. **Software Requirement Specification (SRS):** Problem analysis, structuring information, Data flow diagram and data dictionary, structured analysis, Characteristics and component of (SRS).

SECTION-C

5. **Planning a Software Project:** Cost estimation, uncertainties in cost estimation, Project scheduling and milestones, Software & Personal Planning
6. **System Design:** Design Objectives, Design Principles, Top Down and Bottom-up techniques, Structure Design, Structure Charts, Design Methodology.
7. **Detailed Design:** Module specification, Specifying functional module, specifying data abstraction, PDL and Logic/Algorithm Design.

SECTION-D

8. **Coding:** Coding by Top-down and Bottom-up, Structured Programming, Information Hiding, Programming style, Internal Documentation.
9. **Testing:** Level of testing, Test cases and test criteria, Functional Testing, Structural Testing.

References:-

1. Software Engineering, Roger S. Pressman.
2. Integrated Approach to Software Engineering, Pankaj Jalote.

SEMESTER-III

RELIGIOUS STUDIES

ਧਰਮ ਅਧਿਐਨ

(ਸਾਮੀ ਧਰਮ)

ਸਮਾਂ 3 ਘੰਟੇ

ਲੈਕਚਰਾਂ ਦੀ ਗਿਣਤੀ:75%

ਕੁਲ ਅੰਕ:100

ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

ਯਹੂਦੀ ਧਰਮ

1. ਯਹੂਦੀ ਧਰਮ ਦਾ ਇਤਿਹਾਸ: ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ
2. ਪੈਗੰਬਰ ਮੂਸਾ: ਜੀਵਨ ਦੇ ਸਿੱਖਿਆਵਾਂ
3. ਯਹੂਦੀ ਧਰਮ-ਗ੍ਰੰਥ: ਤੋਰਾਹ (The Law), ਨਬੀ (The Prophets), ਕੈਥੂਬੀਮ (The Writings) ਬਾਰੇ ਸੰਖੇਪ ਜਾਣਕਾਰੀ।

SECTION-B

ਈਸਾਈ ਮੱਤ

1. ਈਸਾਈ ਚਰਚ:ਆਰੰਭ ਅਤੇ ਪਾਸਾਰ(ਨਵੇਂ ਨੇਮ ਦੀ ਪੰਜਵੀਂ ਪੁਸਤਕ ਰਸੂਲਾਂ ਦੇ ਕਰਤਬ ਅਨੁਸਾਰ)
2. ਯਸੂ ਮਸੀਹ: ਜੀਵਨ ਤੇ ਸਿੱਖਿਆਵਾਂ
3. ਨਵਾਂ ਨੇਮ (New Testament) : ਤਿੰਨ ਮੁੱਖ ਭਾਗ
 - (i) ਮੱਤੀ ਦੀ ਅੰਜੀਲ (Gospel of Mathew): ਸੰਖਿਪਤ ਜਾਣਕਾਰੀ
 - (ii) 21 ਪੱਤਰ (Epistles) ਸੰਤ ਪਾਲ ਅਤੇ ਦੂਜੇ ਸੰਤਾਂ ਦੇ
 - (iii) ਪ੍ਰਕਾਸ਼ ਦੀ ਪੋਥੀ (Apocalypse)

SECTION-C

ਇਸਲਾਮ

1. ਇਸਲਾਮ ਧਰਮ: ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ, ਪਿਛੋਕੜ, ਆਰੰਭ ਅਤੇ ਵਿਕਾਸ, ਇਸਲਾਮ ਤੋਂ ਪਹਿਲਾਂ ਅਰਬ ਦੀ ਧਾਰਮਿਕ ਅਤੇ ਸਮਾਜਿਕ ਸਥਿਤੀ
2. ਪੈਗੰਬਰ ਮੁਹੰਮਦ: ਜੀਵਨ, ਸਿੱਖਿਆਵਾਂ, ਇਸਲਾਮ ਦੇ ਪੰਜ ਥੰਮ: ਈਮਾਨ,ਸਲਾਤ, ਰੋਜ਼ਾ, ਹੱਜ,ਜ਼ਕਾਤ
3. ਪਵਿੱਤਰ ਕੁਰਾਨ: ਸੰਪਾਦਨਾ ਅਤੇ ਬਣਤਰ

SECTION-D

ਪਾਰਸੀ ਮੱਤ

1. ਜਰਤੁਸ਼ਤ ਮਤ : ਸੰਖੇਪ ਜਾਣ-ਪਛਾਣ, ਸਮਕਾਲੀ ਸਮਾਜਿਕ ਅਤੇ ਧਾਰਮਿਕ ਅਵੱਸਥਾ, ਜਲਾਵਤਨੀ ਅਤੇ ਭਾਰਤ ਵਿਚ ਆਗਮਨ
2. ਜਰਤੁਸ਼ਤ ਪੈਗੰਬਰ: ਜੀਵਨ, ਸਿੱਖਿਆਵਾਂ, ਨੇਕੀ-ਬਦੀ ਦਾ ਸਿਧਾਂਤ, ਪਰਿਵਾਰਿਕ ਅਤੇ ਸਮਾਜਿਕ ਭਾਈਚਾਰੇ ਦੀ ਬਣਤਰ

3. ਜਰਤੁਸ਼ਤ ਮਤ ਦੇ ਧਰਮ-ਗ੍ਰੰਥ: ਅਹੁਰ ਮਾਜ਼ਦਾ, ਅਹਰਮਨ ਅਤੇ ਜੰਦ-ਅਵੇਸਤਾ ਦੀ ਸੰਖੇਪ ਜਾਣਕਾਰੀ

ਸੁਝਾਈਆਂ ਪੁਸਤਕਾਂ ਦੀ ਸੂਚੀ:

ENGLISH:

1. Ali, K. *A Study of Islamic History*, Mullick Brothers, Calcutta, 1971.
2. Ansari, M. Abdul Haq, *Islam*, Punjabi University, Patiala, 1969.
3. Buck, Harry M., *People of the Lord, The History, Scripture and faith of ancient Israel*, The Macmillan, 1966.
4. *Christianity*, Punjabi University, Patiala, 1969.
5. Clark, Denmise E., *Jesus Christ- His Life and Teachings*, , Madarsa Road, Kashmiri Gate, Delhi, 1654.
6. Foster, John, *Church History*, ISPCK, New Delhi, 2013.
7. Greenless, Duncan, *The Gospel of Zorathustra*, Adyar Publication, Madras, 1968.
8. Guillame, Alfred, & Arnold Thomas (Ed.), *The Legacy of Islam*, Oxford University, London, 1960.
9. Hindson, David F., *History of Israel*, ISPCK, Delhi, 2007.
10. Hitti, P.K., *History of Arabs*, Macmillan, London, 1977.
11. M.N., Dhalla, *History of Zoroastrianism* K.R. Cama Oriental Institute, Bombay, 1997.
12. Pickthal, M.M., *The Meaning of the Glorious Koran*, George Allan and Unwin, 1969.
13. Prof.Gurcharan Singh Talwara, *Islam Sidant Ate Sikhiya*, Waris Shah Foundation, Amritsar, 2014.

Punjabi:-

1. ਗੁਲਵੰਤ ਸਿੰਘ, *ਇਸਲਾਮ ਅਤੇ ਸੂਫੀਵਾਦ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1994.
2. ਜੀ. ਆਰ. ਸਿੰਘ ਅਤੇ ਸੀ. ਡਬਲਿਊ ਡੇਵਿਡ, *ਯਹੂਦੀ ਧਰਮ ਪ੍ਰਸਿੱਤਯ ਧਰਮ*, ਲਖਨਊ ਪਬਲਿਸ਼ਿੰਗ ਹਾਊਸ, ਲਖਨਊ.
3. ਐਲ.ਐਮ.ਜੋਸ਼ੀ, *ਵਿਸ਼ਵ ਧਰਮ ਸੰਗ੍ਰਹਿ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1971.
4. ਗੁਰਬਚਨ ਸਿੰਘ ਤਾਲਿਬ, (ਸੰਪਾ.) *ਸੰਸਾਰ ਦੇ ਕੁਝ ਪ੍ਰਮੁੱਖ ਧਰਮ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1985.
5. ਤੇਜਿੰਦਰ ਕੌਰ ਧਾਲੀਵਾਲ, *ਯਹੂਦੀ ਅਤੇ ਈਸਾਈ ਧਰਮ : ਇਕ ਜਾਣ-ਪਛਾਣ*, ਗ੍ਰੇਸੀਅਸ ਪਬਲੀਕੇਸ਼ਨ, ਪਟਿਆਲਾ, 2009.
6. ਬਾਈਬਲ (ਪੰਜਾਬੀ ਅਨੁਵਾਦ), ਬਾਈਬਲ ਸੁਸਾਇਟੀ ਆਫ ਇੰਡੀਆ, ਬੰਗਲੌਰ, 1976.
7. ਮੈਸੀ, ਜੇਮਜ਼, *ਮਸੀਹੀਅਤ: ਇਕ ਪਰਿਚਯ*, ਫਕੀਰ ਸਿੰਘ ਐਂਡ ਸੰਨਜ਼, ਅੰਮ੍ਰਿਤਸਰ, 1976.
8. ਭੱਟੀ ਕਰਤਾਰ ਸਿੰਘ, *ਈਸਾਈ ਧਰਮ ਇਕ ਜਾਣ ਪਛਾਣ*, ਗ੍ਰੇਸੀਅਸ ਪਬਲੀਕੇਸ਼ਨ, ਪਟਿਆਲਾ, 2009

SEMESTER–III

PHILOSOPHY

**DEDUCTIVE LOGIC AND APPLIED ETHICS (OPT. I)
(Only for Regular Students)**

Lectures to be delivered: 6+4=10 per week

Time: 3 Hours

Pass Marks: 35%

Marks: 100

Theory Marks: 80

Practical Marks: 20

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

There will be a separate paper for practical related to the subject. For it there will be four lectures in a week besides the theory lectures. The focus of these lectures would be on the applied aspect of the course and the students will prepare a presentation on the basis of their observations of specific problems related with Applied Ethics. A teacher from the affiliated colleges will evaluate the students on the basis of Applied Ethics.

SECTION–A

1. Definition, Nature and Utility of Western Logic.
2. Laws of Thought: Identity, Contradiction, Excluded Middle, Law of Sufficient Reason and Characteristics.
3. Terms: Classification, Connotation and Denotation. Inverse Relation between Connotation and Denotation.

SECTION–B

4. Proposition: Classification of Propositions, Four-fold division of Propositions.
5. Immediate Inference: Square of Opposition of Proposition, Contradiction, Contrary, Sub-Contrary, Subalternation.
6. Mediate Inference: Categorical Syllogism, Rules of Validity, Figures and Moods.

SECTION–C

7. Applied Ethics: Nature, Scope and Uses.
8. De-ontological Approach to Moral Action: Immanuel Kant, Bhagavat Gita.
9. Teleological Approach to Moral Action: J.S. Mill, Bentham.

SECTION–D

10. Medical Ethics: Definition, Nature, Problems; Euthanasia.
11. Educational Ethics & Legal Ethics: Definition, Nature, Problems.
12. Business Ethics: Definition, Nature, Problems.

SEMESTER-III

PHILOSOPHY

Recommended Readings:-

English Books:-

1. Beauchamp T.L. & J.E. Childress, (Jr.), *Principles of Biomedical Ethics*, 2nd Ed., Oxford University Press, Oxford, 2001
2. Copi, I.M., *Introduction to Logic*, 6th ed., New York, Macmillan, 1982.
3. Singer, Peter, *Practical Ethics*, Cambridge University Press, 1993.
4. Titus, Harold H., *Ethics for Today*, Eurasia Publishing House, New Delhi, 1966.
5. Singh Peter., *Applied Ethics*, Oxford Readings in Philosophy, Oxford University Press, 1986

Punjabi Books:-

1. ਵਜ਼ੀਰ ਸਿੰਘ ਅਤੇ ਹਰਨਾਮ ਸਿੰਘ, *ਤਰਕ ਗਿਆਨ ਦੇ ਮੁਢਲੇ ਨੇਮ*, (ਭਾਗ-1) (ਨਿਗਮਨ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
2. ਸ਼ਰਮਾ, ਪੀ.ਏ. ਅਤੇ ਵਜ਼ੀਰ ਸਿੰਘ, *ਤਰਕ ਗਿਆਨ ਦੀ ਜਾਣ-ਪਛਾਣ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

SEMESTER–III

PHILOSOPHY

DEDUCTIVE LOGIC AND SOCIAL PHILOSOPHY (OPT. II)

(Only for Private Students)

Time: 3 Hours

Max. Marks: 100

Lecture to be delivered: 6 per week

Pass Marks: 35%

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Definition, Nature and Utility of Western Logic.
2. Laws of Thought: Identity, Contradiction, Excluded Middle, Law of Sufficient Reason and their Characteristics.
3. Terms: Definition, Classification, Connotation & Denotation, Inverse Relation between Connotation and Denotation.

SECTION–B

4. Proposition: Classification of Propositions, Four-fold division of Propositions.
5. Immediate Inference: Square of Opposition of proposition, Contradiction, Contrary, Sub-Contrary, Subalternation.
6. Mediate Inference: Categorical Syllogism, Rules of Validity, Figures & Moods.

SECTION–C

7. Social Philosophy: Nature, Scope and Significance.
8. Social Philosophy and Ethics: Relationship and Difference in their concerns.
9. Social Philosophy and Political Science: Relationship and Difference in their concerns.

SECTION–D

10. Plato's Theory of State.
11. Theories about Origin of Society: Organic Theory, Social Contract Theory and Idealistic Theory.
12. Social Progress: Meaning and Factors.

SEMESTER-III

PHILOSOPHY

Recommended Readings:-

English Books:-

1. Bech, Robert N., *Handbook of Social Philosophy*, 1969.
2. Copi, Irving M. *Introduction to Logic*, 6th, New York, Macmillan, 1982.
3. Daya Krishan, *Social Philosophy: Past and Future*, Indian Institute of Advanced Study, Shimla, 1969.
4. Quinton, Anthony (Ed.), *Political Philosophy*, Oxford University Press, London, 1973.
5. Sharma, Ram Nath, *Overview of Philosophy*, Lucky Star, Delhi, 1983.

Punjabi Books:-

1. ਵਜ਼ੀਰ ਸਿੰਘ ਅਤੇ ਹਰਨਾਮ ਸਿੰਘ, *ਤਰਕ ਗਿਆਨ ਦੀ ਜਾਣ-ਪਛਾਣ* : (ਭਾਗ-1) (ਨਿਗਮਨ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

Hindi Books:-

1. ਗੌਤਮ, ਸਤਿਆਪਾਲ, *ਸਮਾਜ ਦਰਸ਼ਨ*, ਹਰਿਆਣਾ ਸਾਹਿਤਯ ਅਕੈਡਮੀ, ਪੰਚਕੁਲਾ।
2. ਮੇਕੋਂਜੀ, ਜੇ.ਐਸ., *ਸਮਾਜ ਦਰਸ਼ਨ ਕੀ ਰੂਪ ਰੇਖਾ*, ਰਾਜਕਮਲ, ਪਟਨਾ।

SEMESTER-III

ZOOLOGY

Paper	Maximum Marks		Hours of Teaching	
	Theory Marks	Practical Marks	Theory	Practical
ZOO-IIIA (Evolution)	35	—	3 Hrs	—
ZOO-IIIB (Biodiversity-III)	35	—	3 Hrs	—
PRACTICAL-III (RELATED TO ZOO-IIIA and ZOO-IIIB)	—	30	—	4½ Hrs

SEMESTER-III**ZOOLOGY**
ZOO-III A: Evolution
(THEORY)**Max. Time: 3 Hrs.****Max Marks: 35****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Introduction to evolution
Evidences of organic evolution
Theories of organic evolution

SECTION-B

Origin of life
Concept of micro, macro and mega-evolution
Concept of Species
Speciation

SECTION-C

Fossils, its types and significance
Evolutionary rate
Origin & Extinction of reptiles
Evolution of man (in Brief)

SECTION-D

Migration & Parental Care in Pisces
Flight adaptation & Bird migration
Adaptive radiations like scales & fins in fish, poison apparatus in snakes and dentition in Mammals.

Suggested Readings:-

1. Avers, C. J.(1989). Evolution Process and Pattern in Evolution, Oxford University, Press, New York, Oxford.
2. Ayala, F. J. and Valentine J. W. (1979). Evolving the theory and Process of Organic Evolution, Benjamin Cumming.
3. Bhamarah, H.S.(1993), Juneka K., Cytogenetics & Evolution, Anmol Publication Pvt. Ltd.
4. Brookfield, A. P. (1986). Modern aspects of Evolution. Hutchinson London, Melbourne.
5. Colbert. E.H.(1989), Evolution of Vertebrates, (2nd ed), Wiley Eastern Ltd.
6. Dobzhansky, Ayala, Stebbins & Valentine(1952), Evolution W.H. Freeman.
7. Gallow, P. (1983). Evolutionary principles. Chapman and Hall.
8. Freeman, S. and Herron, Jon C. (2007). Evolutionary analysis, Pearson Prentice Hall, New Jersey.
9. Futuyma, D. J. (1998), Evolutionary Biology, Sinauer Assoc. Inc. Pub. USA.
10. Meglitsch, P. A. (1991), Invertebrate Zoology (3rd ed), Oxford University Press.
11. Minkoff, E. C. (1983), Evolutionary Biology, Addison Wesley Pub. Co., London.
12. Wen-Hsiung Li (1997), Molecular Evolution, Sinauer associates Inc.Pub. USA.

SEMESTER-III
ZOOLOGY
ZOO-III B: Biodiversity-III
(Chordates)
(THEORY)

Max. Time: 3 Hrs.

Max Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Urochordata: External features and affinities of *Herdmania*
Cephalochordata: Type study-*Amphioxus*

SECTION-B

Cyclostomata: External Characters of *Petromyzon*
Affinities of Cyclostomata

Pisces: Type study-*Labeo*

SECTION-C

Amphibia: Type study-Frog
Reptilia: Type study-*Uromastix*

SECTION-D

Aves: Type study-Pigeon
Mammals: Type study-Rat

Suggested Reading Material:-

1. Dhami, P.S. & Dhami J.K. (1998), Vertebrates, R. Chand & Co., New Delhi.
2. Goodrich, E. S. (1958), Structure and Development of Vertebrates, Vol. I and II. D. E. Publication, New York.
3. Hildebrand, M. and Goslow. Jr. G.E. (2001), Analysis of Vertebrates Structure, John Wiley, N. Y.
4. Jollie, M. (1968), Chordate Morphology, Reinhold, New York.
5. Kardong, K. V. (1995), Vertebrates – Comparative Anatomy, Function, Evolution. W.B.C. Pub. , Oxford.
6. Kent, G. C. and Carr, R. K. (2001), Comparative Anatomy of the Vertebrates (9th ed), McGraw Hill Higher Education, New York.
7. Linzey, D. (2001), Vertebrate Biology, McGraw Hill Publishing Company, New York.

8. Pough, F. H., Heiser, J. B. and McFarland, W. N. (1990), *Vertebrate Life* (3rd ed), Macmillan Pub. Co., New York.
9. Young, J. Z. (1982), *The Life of Vertebrates*, New York.
10. Parker, T.J. and Haswell, W.A (1981) *Text Book of Zoology*, Vol. II (Vertebrates), ELBS and Macmillian Press Ltd.

SEMESTER-III

ZOOLOGY

Practical-III (Related to ZOO-III A and ZOO-III B)

Time: 3hrs.

Marks: 30

Important Note for Practical:-

1. Candidates will be required to submit their original note books containing record of their laboratory work.
2. Wherever possible, students must be taken out for excursion to the field (Zoological gardens, sea shores, ponds and hill stations etc.) to study habitat and ecology of the animals.
3. As per the latest UGC guidelines (D.O.No. F. 14-6/2014(CPP-II) dated 01-08-2014) the dissections should not be conducted. The guidelines on this issue are available on the UGC website: www.ugc.ac.in

I. Classification up to order level, except in case of Pisces and Aves where classification up to subclass level, habits, habitat, external characters and economic importance (if any) of the following animals is required :

- Urochordata** : *Herdmania, Molgula, Pyrosoma, Doliolum, Salpa & Oikopleura.*
- Cephalochordata** : *Amphioxus.* Study of the following prepared slides:
T.S. *Amphioxus* through various regions, Pharynx of *Amphioxus*
- Cyclostomata** : *Myxine, Petromyzon & Ammocoetes* Larva.
- Chondrichthyes** : *Zygaena* (hammer head shark), *Pristis* (saw fish), *Narcine* (electric ray), *Trygon, Rhinobatus and Chimaera* (rabbit fish).
- Actinoptergii** : *Polypterus, Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeineis and Solea.*
- Dipneusti (Dipnoi)** : *Protopterus* (african lung fish)
- Amphibia** : *Uraeotyphlus, Necturus, Amphiuma, Amblystoma* and its Axolotl Larva, *Triton, Salamandra, Hyla, Rhycophorus*
- Reptilia** : *Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Vipera, Crocodilus, Gavialis, Chelone* (turtle) and *Testudo* (tortoise), Differences in nonpoisonous and poisonous snakes.
- Aves** : *Casuaris, Ardea, Anas, Milvus, Pavo, Eudynamics, Tyto* and *Alcedo.*
- Mammalia** : *Ornithorynchus, Echidna, Didelphis, Macropus, Loris, Macaca, Manis, Hystrix, Funambulus, Panthera, Canis, Herpestes, Capra, Pteropus.*

II.	Study of the following systems with the help of charts/models/videos:
<i>Herdmania</i>	: General anatomy
<i>Labeo</i>	: Digestive and reproductive systems, heart, afferent and branchial arteries, cranial nerves and internal ear.
Chick	: Digestive, arterial, venous and urino-genital systems.
White Rat	: Digestive, arterial, venous and urino-genital systems.

Study of permanent slides of whole mount of Pharynx of *Herdmania* and *Amphioxus*.
Cycloid scales of *Labeo*, blood smear of mammal, Histology of rat/rabbit (compound tissues)

Demonstration of evolutionary phenomena like homology, analogy, mimicry, crypsis.
Study of evolution of horse/elephant/man.

Study of fossils.

Assignment

Note:- Some changes can be made in the practicals depending on the availability of material.

Guidelines for conduct of Practical Examination:

1. Draw a labelled sketch of the system of the given animal & explain it to the Examiner. 4
2. Identify and classify the specimens upto order level. Write a short note on habitat, special features, feeding, habits and economic importance of the specimens. 8
3. Identify and write a note on the evolutionary phenomenon in the given specimen. 4
4. Identify the slides/specimens, give two reasons for identification. 5
5. Assignment 4
6. Viva-voce & Practical file. 5

**SEMESTER-III
BOTANY**

**PAPER- III A- STRUCTURE, DEVELOPMENT AND REPRODUCTION IN
FLOWERING PLANTS-I (THEORY)**

Time: 3 Hrs.

Theory Lectures: 3 Hours/Week

Max. Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

The basic body plan of a flowering plant-modular type of growth. diversity in plant form in annuals, biennials and perennials; trees-largest and longest-lived. branching pattern; monopodial and sympodial growth; canopy architecture.

SECTION-B

The Shoot System: The shoot apical meristem and its histological organization; meristematic and permanent tissue, formation of internodes. Cambium and its functions; formation of secondary xylem.

SECTION-C

A general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; role of woody skeleton; secondary phloem-structure function relationships; periderm.

SECTION-D

Leaf: Origin, development, arrangement and diversity in size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission.

Suggested Readings:

1. Beck, C.B. (2010). An Introduction to Plant Structure and Development: Plant anatomy for the Twenty First Century (2nd Edition). Cambridge University Press, UK.
2. Cutler, D. F., Botha, T. and Stevenson, D. M. (2007). Plant Anatomy: An Applied Approach. Blackwell Publishing, Oxford, UK.
3. Dickison, W.C. (2000). Integrative Plant Anatomy. Academic Press, California, USA.
4. Mauseth, J.D. (1988). Plant Anatomy, The Benjamin/Cummings Publishing Company Inc., Menlo Park, California, USA.
5. Peau, K (1977) Anatomy of Seed Plants, 3rd edition. John Wiley & Sons, New York.
6. Raven, P.H., Evert, R.F. and Eichhorn, S.E. (1999). Biology of Plants, 5th edition. W.H. Freeman and Co., Worth Publishers, New York.
7. Rudall, P. J. (2007). Anatomy of Flowering Plants: An Introduction to Structure and Development (3rd Edition). Cambridge University Press, UK.
8. Thomas, P. (2000) Trees: Their Natural History, Cambridge University Press, Cambridge

**SEMESTER-III
BOTANY**

**Paper-III B: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN
FLOWERING PLANTS-II (THEORY)**

Time: 3 Hrs.

Theory Lectures: 3 Hours/Week

Max. Marks: 35

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

The Root System: The root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.

SECTION-B

Vegetative Reproduction: various methods of vegetative propagation. Detailed study and types of grafting and budding, economic aspects. Flower: A modified shoot; structure, development and varieties of flower; functions;

SECTION-C

Structure of anther and pistil; the male and female gametophytes; types of pollination; attractions and reward for pollinators; (sucking and foraging types); pollen-pistil interaction self incompatibility.

SECTION-D

Double fertilization: formation of seed endosperm and embryo : fruit development and maturation Significance of Seed: Suspended animation; ecological adaptation; unit of genetic recombination with reference to reshuffling of genes and replenishment; dispersal strategies.

Suggested readings:

1. Bhojwani, S.S. and Bhatnagar, S.P. (2000). The Embryology of Angiosperms, 4th revised and enlarged edition. Vikas Publishing House, Delhi.
2. Hartmann, H.T. and Kestler, D.E. (1976). Plant Propagation: Principles and Practices, 3rd edition, Prentice Hall of India Pvt. Ltd., New Delhi.
3. Mauseth, J.D. (1988). Plant Anatomy, The Benjamin/Cummings Publishing Company Inc., Menlo Park, California, USA.
4. Peau, K. (1977). Anatomy of Seed Plants, 3rd edition. John Wiley & Sons, New York.
5. Pegeri, K. and Vander Pijl (1979). The Principles of Pollination Biology, Pergamon Press, Oxford.
6. Raven, P.H., Evert, R.F. and Eichhorn, S.E. (1999). Biology of Plants, 5th edition. W.H. Freeman and Co., Worth Publishers, New York.

**SEMESTER–III
BOTANY**

Botany Practicals–III (Based on Papers–III A and III B)

Practical Marks: 30

Practical Hours: 4½ Hours/week

Suggested Laboratory Exercises

1. Study of any commonly occurring dicotyledonous plant (for example *Solanum nigrum* or *Kalanchoe*) to the body plan, organography and modular type of growth.
2. Life forms exhibited by flowering plants (by a visit to a forest or a garden, Study of treelike habit in cycads, bamboo, banana, traveller's tree (*Revenala madagascariensis*) and *Yucca* and comparison with true trees as exemplified by conifers and dicotyledons.
3. L.S. Shoot tip to study the cytohistological zonation and origin of leaf primordia.
4. Monopodial and sympodial types of branching in stems (especially rhizomes).
5. Anatomy of primary and secondary growth in monocots and dicots using free hand razor technique (*Solanum*, *Boerhavia*, *Helianthus*, *Mirabilis*, *Nyctanthus*, *Draceana*, *Maize*) hand sections (or prepared slides). Structure of secondary phloem and xylem. Growth rings in wood, Microscopic study of wood in T.S., T.L.S. and R.L.S.
6. Field study of diversity in leaf shape, size, thickness, surface properties. Internal structure of leaf. Structure and development of stomata (using epidermal peels of leaf).
7. Anatomy of the root. Primary and secondary structure.
8. Examination of a wide range of flowers available in the locality and methods of their pollination.
9. Structure of anther, microsporogenesis (using slides) and pollen grains (using whole mounts). Pollen viability using in vitro pollen germination.
10. Structure of ovule and embryo sac development using serial sections from permanent slides.
11. Nuclear and cellular endosperm. Embryo development in monocots and dicots (using permanent slides/dissections).
12. Simple experiments to show vegetative propagation (leaf cuttings in *Bryophyllum*, *Sansevieria*, *Begonia*; stem cuttings in *rose*, *Salix*, money plant, *Sugarcane* and *Bougainvillea*).
13. Germination of non-dormant and dormant seeds.

Suggested Readings (for laboratory exercises):

1. Bhojwani, S.S. and Bhatnagar, P. (2000). *The Embryology of Angiosperms* (4th revised and enlarged edition), Vikas Publishing House, New Delhi.
2. Mauseth, J.D. (1988). *Plant Anatomy*, The Benjamin/Cumminas Publishing Co., Inc., Mehlo Park, California, USA.
3. Raven, P.H., Evert, R.F. and Eichhorn, S.E. (1992). *Biology of Plants* (5th Edition). Worth Publishers, New York.
4. Steeves, T.A. and Sussex, I.M. (1989). *Patterns in Plant Development* (2nd Edition). Cambridge University Press, Cambrid.

SEMESTER–III
ESL 221 Environmental Studies (Compulsory)

Time: 3 Hrs.

Max. Marks: 100

Teaching Methodologies

The Core Module Syllabus for Environmental Studies includes class room teaching and field work. The syllabus is divided into 8 Units [Unit-1 to Unit-VII] covering 45 lectures + 5 hours for field work [Unit-VIII]. The first 7 Units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit-VIII comprises of 5 hours field work to be submitted by each candidate to the Teacher in-charge for evaluation latest by 15 December, 2020.

Exam Pattern: **End Semester Examination- 75 marks**
 Project Report/Field Study- 25 marks [based on submitted report]
 Total Marks- 100

NOTE: Private Candidates may be exempted from Project Report (25 Marks) and Theory Paper (75 Marks) can be increased on *pro rata* basis for declaring their results.

The structure of the question paper being:

Part-A, Short answer pattern with inbuilt choice – 25 marks

Attempt any five questions out of seven distributed equally from Unit-1 to Unit-VII. Each question carries 5 marks. Answer to each question should not exceed 2 pages.

Part-B, Essay type with inbuilt choice – 50 marks

Attempt any five questions out of eight distributed equally from Unit-1 to Unit-VII. Each question carries 10 marks. Answer to each question should not exceed 5 pages.

Project Report / Internal Assessment:

Part-C, Field work – 25 marks [Field work equal to 5 lecture hours]

The candidate will submit a hand written field work report showing photographs, sketches, observations, perspective of any topic related to Environment or Ecosystem. The exhaustive list for project report/area of study are given just for reference:

1. Visit to a local area to document environmental assets: River / Forest/ Grassland / Hill / Mountain / Water body / Pond / Lake / Solid Waste Disposal / Water Treatment Plant / Wastewater Treatment Facility etc.
2. Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
3. Study of common plants, insects, birds
4. Study of tree in your areas with their botanical names and soil types
5. Study of birds and their nesting habits
6. Study of local pond in terms of wastewater inflow and water quality
7. Study of industrial units in your area. Name of industry, type of industry, Size (Large, Medium or small scale)
8. Study of common disease in the village and basic data from community health centre
9. Adopt any five young plants and photograph its growth
10. Analyze the Total dissolved solids of ground water samples in your area.
11. Study of Particulate Matter (PM_{2.5} or PM₁₀) data from Sameer website. Download from Play store.
12. Perspective on any field on Environmental Studies with secondary data taken from Central Pollution Control Board, State Pollution Control Board, State Science & Technology Council etc.

UNIT–I

The multidisciplinary nature of environmental studies

Definition, scope and importance, Need for public awareness

(2 lectures)

UNIT-II

Natural Resources: Renewable and non-renewable resources:

Natural resources and associated problems.

- Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
 - Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
 - Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
 - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
 - Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
 - Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
- Role of an individual in conservation of natural resources.
 - Equitable use of resources for sustainable lifestyles.

(8 Lectures)

UNIT-III

Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

(6 Lectures)

UNIT-IV

Biodiversity and its conservation

- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

(8 Lectures)

UNIT-V

Environmental Pollution

Definition

- Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

(8 Lectures)

UNIT-VI

Social Issues and the Environment

- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

(7 Lectures)

UNIT-VII

Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

(6 Lectures)

UNIT-VIII

Field Work

- Visit to a local area to document environmental assets river/forest/grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc

(Field work equal to 5 lecture hours)

ADVISORY FOR PUSHPA GUJRAL SCIENCE CITY, KAPURTHALA :

The Under Graduate students studying Environmental Studies (Compulsory Paper for All UG College Courses) may be taken to Pushpa Gujral Science City, Kapurthala in lieu of Field study report of 25 marks.

Although students will submit a hand written reports with pictures/ graphs/ tables related to biodiversity, ecology, health, biotechnology, energy, water etc. in about 10 pages to the teacher in-charge.

Above advisory is issued to promote scientific temperament in undergraduate classes and is optional. Further, the report will only be considered if there will be a minimum strength of 25 students along with deputed teacher by the college.

References:-

1. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
2. Down to Earth, Centre for Science and Environment, New Delhi.
3. Heywood, V.H. & Waston, R.T. 1995. Global Biodiversity Assessment, Cambridge House, Delhi.
4. Joseph, K. & Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
5. Kaushik, A. & Kaushik, C.P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
6. Rajagopalan, R. 2011. Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.
7. Sharma, J. P., Sharma. N.K. & Yadav, N.S. 2005. Comprehensive Environmental Studies, Laxmi Publications, New Delhi.
8. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publications, Meerut.
9. State of India's Environment 2018 by Centre for Sciences and Environment, New Delhi
10. Subramanian, V. 2002. A Text Book in Environmental Sciences, Narosa Publishing House, New Delhi.

**SEMESTER-III
MICROBIOLOGY**

**MICROBIAL NUTRITION AND METABOLISM
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 75
Practical Marks: 25**

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

1. Nutrition, requirements for growth of Microorganisms, Nutrients and accessory constituents, medium designing.

SECTION-B

2. Transport of nutrients across the cell membrane, active transport, passive transport, diffusion and group translocation for the transport of nutrients across the membrane.

SECTION-C

3. Growth and metabolism, catabolism and energy, Pathways, for breakdown of glucose (glycolysis, Krebs's cycle fermentation, pentose phosphate pathways), gluconeogenesis, assimilation of nitrogen energy metabolism in aerobic and anaerobic microorganisms, metabolism of starch & cellulose by bacteria.

SECTION-D

4. Laws of thermodynamics, entropy, enthalpy and free energy of reaction standard, oxidative phosphorylation, Electron transport, respiratory chains of bacteria. Biosynthesis of nucleic acids, for synthesis of purine and pyrimidine nucleotides. Enzymes, kinetics, Michaelis Menten equation and allosteric enzymes.

Books Recommended:

1. Pleczar, M.J., Chan, E.C.S. Krieg. N.R., 1993, Microbiology, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
2. Stanier, R.Y., Ingraham, J.L., Wheelis, M.L. and Painter, P.R., 1986, General Microbiology, MacMillan Education Ltd., Publishers.
3. Power, C.B. and Dangniwala, H.F.1992, General Microbiology, Volume I and II, Himalaya Publishing House, New Delhi.
4. Sharma, P.D.1997, Microbiology, Rastogi Publications, Meerut.

SEMESTER–III**MICROBIOLOGY****(PRACTICAL)****Time: 4 Hours****Marks: 25**

1. Isolation and enumeration of total bacteria from soil by pour plating and spread plating.
2. Distinction between fermenting and non-fermenting microorganisms.
3. Effects of various concentrations of carbon source on microbial growth.
4. Effects of various concentrations of nitrogen source on microbial growth.
5. Effect of temperature on microbial growth.
6. Effect of pH on microbial growth.

SEMESTER-III
BIOINFORMATICS (VOCATIONAL)
INTRODUCTION TO BIOINFORMATICS AND BIOLOGICAL DATABASES
(THEORY)

Time: 3 Hrs.
Credit Hours: 6

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Introduction to Bioinformatics: History of Bioinformatics, milestones, objectives and applications of Bioinformatics. Genome sequencing projects, Human genome sequencing project and its applications. **Genomics and Proteomics:** Basic concept and analysis, Functional and comparative genomics: definition and applications.

Introduction and Applications: Transcriptomics, Metabonomics, Pharmacogenomics and population genomics.

SECTION-B

Introduction to Biological Databases: Definition, Type and kind of biological databases, Introduction to ASN1 and NCBI data Model: Why specialized data model is required for biological sequences. Open access bibliographic resources and literature databases: PubMed, BioMed Central.

Database Retrieval and Deposition Systems- SRS, Entrez, Bankit, Webin, AutoDep etc.

Sequence and structural Formats: FASTA, Genbank, PDB, SMILES, MDL Molfile, FASTQ .

SECTION-C

Nucleic Acid Sequence Databases: GenBank, EMBL, DDBJ; **Protein Sequence Databases:** Uniprot-KB: SWISS-PROT, TrEMBL, UniParc.

Genome Databases: Ensembl Genome Project , Rice Genome Annotation project, Flybase (Drosophila), Mouse Genome Informatics (Mouse), TAIR (Arabidopsis thaliana).

SECTION-D

Structural Databases: PDB, PDBsum, NDB etc.; **Motifs and Pattern Databases:** PROSITE, Pfam etc.; **RNA Databases:** Rfam, RNACentral (The non-coding RNA sequence database).

Metabolic pathways database: KEGG, STRING. **Carbohydrates structure Database:** CSDB Glycoscience.

Database Searching for Homologous Sequences: FASTA, BLAST.

Recommended Books:

- 1 Durbin R. and Eddy S. (1998). Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids. *Cambridge University Press*.
- 2 Higgins D. And Taylor W. (2000). Bioinformatics: Sequence Structure & Data Banks: A Practical Approach. *Oxford University Press, USA*.
- 3 Ewens W. J. and Grant G. R. (2001). Statistical Methods in Bioinformatics: An Introduction. *Springer Verlag*.
- 4 Lesk A. M. (2002). Introduction to Bioinformatics. *Oxford University Press*.
- 5 Krane D. E. and Raymer M. L. (2002). Fundamental Concepts of Bioinformatics. *Benjamin Cummings*.
- 7 Orengo C.A., Jones D.T. and Thornton J.M. (2003). Bioinformatics: Genes Proteins

SEMESTER–III
BIOINFORMATICS (VOCATIONAL)
LAB IN INTRODUCTION TO BIOINFORMATICS AND BIOLOGICAL DATABASES
(PRACTICAL)

Time: 3 Hrs.

Marks: 25

Credit Hours: 4½

1. Study of NCBI, EBI and ExPasy data Repositories.
2. Study of Nucleic acid and protein databases: GenBank, EMBL, DDBJ, SWISS PROT, UNIPROT etc.
3. Study of Various human, plants and animal databases: Ensembl Genome project, TIGR database, Flybase, **TAIR**, **Mouse Genome Informatics** etc.
4. Study of Structural databases: PDB, PDBsum, NDB etc.
5. Study of Motifs and Pattern Databases: PROSITE, Pfam, **INTERPRO** etc.
6. Study of RNA databases: **Rfam**, **RNAcentral**
7. Carbohydrates databases: **CSDB Glycoscience**
8. Database Retrieval and deposition systems: SRS, Entrez, Bankit, Seqin
9. **Metabolic pathways database: KEGG, STRING**
10. Database for Searching Homologous Sequences: FASTA, BLAST.

SEMESTER-III

BIOTECHNOLOGY (VOCATIONAL)

IMMUNOLOGY AND ANIMAL TISSUE CULTURE (THEORY)

Time: 3 Hours

Credit Hours/week: 6

Max. Marks: 100

Theory Marks: 75

Practical Marks: 25

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Types of Immunity-Innate and Adaptive; Lymphoid Cells, Heterogeneity of Lymphoid Cells; T-Cells; B-Cells, Null Cells; Monocytes, Polymorphs, Primary and Secondary Lymphoid Organs-Thymus, Bursa of Fabricius, Spleen, Lymph Nodes, Lymphatic System, MUCOSA Associated Lymphoid Tissue (MALT), Lymphocyte Traffic.

SECTION-B

Humoral Immune Response: Antigen and Antibody and their characteristics, Antigen-Antibody Interaction, Cell Mediated Immunity : Role of MHC and T-Cell Receptor Complex, Origin of Diversity in Immune System, Effector Mechanisms, Immunity to Infectious Diseases.

SECTION-C

History of Development of Cell Culture, the Natural Surroundings of Animal Cells, Metabolic Capability of Animal Cells, Simulating Natural Conditions for Growing Animal Cells, Importance of Growth Factors of the Serum.

SECTION-D

Primary Culture, Anchorage and Non-Anchorage Dependent Cell Cultures, Secondary Culture, Transformed Animal Cells, Established/Continuous Lines, Commonly used Animal Cell Lines : Their Origin and Characteristics, Growth Kinetics of Cells in Culture.

Books Recommended:

1. Austyn, J.M. and Wood K.J. (1993), Principles of Cellular and molecular Immunology, Oxford University Press Inc. New York
2. Britch, J.R. and Lennox, E.S. (1995), Monoclonal Antibodies Principles and Application, Wiley Liss.
3. Strites D.P., Terr. A.I. & Parslow T.G. (1997), Medical Immunology, 9th Ed., PHI, Cambridge.
4. Kanfmann, S.H.E., Sher A., Ahmed, R. (2002). Immunology of Infections Diseases, ASM Press, Washington
5. Kuby, J. (2007), Immunology, 6TH Edition. W.H. Freeman and Company, New York
6. Paul, W. E. (2008), Fundamental Immunology, 5th Ed., Raven Press, New York
7. Roitt, I.M. Peter. J., Scamus. J. Martin, Dennis. R. Burton (2011), Essential Immunology, Grower Medical Publishing , New York

SEMESTER–III**BIOTECHNOLOGY (VOCATIONAL)****IMMUNOLOGY AND ANIMAL TISSUE CULTURE
(PRACTICAL)****Time: 3 Hrs.****Marks: 25****Credit Hours/week: 4½****Immunology**

1. Blood Group testing.
2. Separation of serum from blood.
3. Separation of plasma from blood.
4. Enumeration of T-cells by E-rosetting method.
5. Separation of macrophages from Blood and testing by dye exclusion method.
6. Double immune Diffusion.

Animal Tissue Culture

1. Glass Ware sterilization.
2. Media sterilization.
3. Laboratory sterilization.
4. Sources of contamination and decontamination measures.
5. Preparation of Hanks Balanced salt solution.
6. Preparation of Minimal Essential Growth medium.

**SEMESTER-III
EDUCATION**

SOCIOLOGICAL FOUNDATIONS OF EDUCATION

Time: 3 hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

1. Meaning, nature & scope of Sociology.
2. Meaning, nature & scope of Educational Sociology

SECTION-B

1. Relationship between sociology & Education.
2. Impact of sociology on different aspects of Education.

SECTION-C

1. Home & school as agencies of Education.
2. Community & Mass-medias as agencies of Education

SECTION-D

1. Education for National Integration
2. Education for Democratic Citizenship

Books Recommended:

1. Dash., D.N. Philosophical and Sociological Foundation of Education, Dominant Publisher, New Delhi, 2005.
2. Prasad and Chandra Sociological Foundations of Education, Deepak KSK Publishers, Delhi, 2006.
3. Sodhi, T.S. Philosophical and Sociological Foundations of Education, Bawa Publications, Patiala, 2007.
4. Taneja, V.R. Foundation of Education, Chandigarh, Mahindra Capital, Punjab, 2006.
5. Saxena Swaroop, N.R. Education In Emerging India Chaturvedi Sikha Society, R.Lall Book Depot, Meerut, 2005.

SEMESTER-III**HUMAN RIGHTS****SOCIETAL ISSUES OF HUMAN RIGHTS IN INDIA****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

Concepts and Approaches: Concept of Societal Problems and Human Rights.

Theoretical approaches to Social problems and Social Changes.

SECTION-B

Social Problems: Causes and Types: Problems of Hierarchy. Problems of Minorities, Scheduled Caste and Scheduled Tribes; Population Explosion; Problems of Aged and Disabled; and Problems of Women.

SECTION-C

Offence involving Human Rights; and Rights of Accrued, Rights of Inmates of Persons and Custodial Homes.

SECTION-D

Rights to Legal Aid, Punishments and Human Rights; and Reforms in Police and Jails.

SEMESTER–III

Recommended Books:-

1. Syed Mehartaj Begum, Human Rights in India: Issues and Perspectives, A.P.H. Publishers, New Delhi.
2. Sahu, Asima, Human Rights Violations and the Law, Pointer Publishers, Jaipur.
3. Naseema C., Human Rights Education, Kanishka Publishers, New Delhi.
4. Subbian Adaikkalam, Human Rights: Philosophy Promotion Protection and Perspective.
5. Kumar, Bindal, (2000), Problems of Working Children, APH Publication, New Delhi.
6. Dikshit, R.C., (1998), Human Rights and the Law, Universal and Indian, Deep and Deep, New Delhi.
7. Jha, R.C., (1995), Resurrecting: Human Right in India, Sheridan Book Company, New Delhi
8. Bava, Noorjahan, (ed), (2000), Human rights and Criminal Justice Administration in India, New Delhi: Uppal Publishing House.
9. Ghosh, S.K., (1993), Torture and Rape in Police Custody: Asish Publishing House, New Delhi.
10. Sharma, A.K. (1995) “Human Rights Violations of Street Children and Child Labor in New Delhi”, In B. P. Singh Seghal (ed.) Human Rights in India: Problems and Perspectives, Deep and Deep, New Delhi.
11. Singh, S.K., (1994), Bonded Labor and the La, Deep and Deep. New Delhi.

SEMESTER–III
DAIRY FARMING (VOCATIONAL)
(THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

General: Factors affecting quality and quantity of milk production. Essentials of clean milk production. Sources of contamination of milk. Milking machine. Importance of milk chilling.

SECTION–B

Housing: The main objectives of housing, advantages of proper housing, factors affecting construction of dairy farm building, methods of housing dairy animals; advantages and disadvantages of various methods of housing; housing requirements of dairy animals.

SECTION–C

Feeding: Food nutrients, functions of various nutrients in animal body. Energy value of feeds, Factors affecting nutritive value of feeds. Requirements of nutrients in different stages of age, production, season and pregnancy. Formulation of rations, feed, pellets,

SECTION–D

Transportation and storage of cattle feed, hay and wheat bhusa enrichment. Availability of forages in different seasons. Schedule of feeding dairy animals.

SEMESTER–III
DAIRY FARMING (VOCATIONAL)
(PRACTICAL)

Time: 3 Hours

Marks: 50

Note: Preparation of Practical Notebook on the basis of work done in the laboratory practical, Weekly write-up of daily job assignments is compulsory.

1. Visits to Dairy farms having machine milking, fodder harvesting, feed mixing etc., Veterinary hospitals, Milk collection centre and milk plant.
2. Identification of various feedstuffs, medicines, chemicals, equipment, instruments, photographs related to dairy farming.

SEMESTER–III**RUSSIAN****RSL201: PAPER–I (APPLIED GRAMMAR)****Time allowed: 3 Hrs.****Max. Marks: 40****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Grammar (all topics covered in the chapters 21-30 of the prescribed text book)

SECTION–B

2. Comprehension (unseen text with questions).

SECTION–C

3. Questions based on the texts covered in the textbook to be answered in Russian.(8 out of 10).

SECTION–D

4. Informal letter on the given situation.

**SEMESTER–III
RUSSIAN**

PAPER–II (TRANSLATION & COMPOSITION)

Time allowed: 3 Hrs.

Max. Marks: 40

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Translation from English into Russian (simple text not exceeding about 150 words)

SECTION–B

2. Translation from Russian into English/Hindi/Punjabi (simple text not exceeding about 200 words)

SECTION–C

3. Paragraph of not less than 150 words. (One out of three topics)
Topics: My country, A Dream, Summer Vacations, My Birthday, The Indian Festivals.

SECTION–D

4. Dialogue writing on a simple situation.

**SEMESTER–III
RUSSIAN**

PAPER–III (ORAL)

Max. Marks: 20

- Reading & comprehension of a text	05 Marks
- Dictation	05 Marks
- Conversation	05 Marks
- Oral comprehension	05 Marks

Note:- Dictionaries are allowed in paper II.

Prescribed Textbook:- “RUSSIAN” – by Wagner V.N. & Ovsienko Y.G. (Lessons 26-30)

Books recommended for additional reading:-

1. A.K.Maurya: ESSENTIAL RUSSIAN, University of Delhi, 2004.
2. S Khavronina: Russian in Exercise, 1978.
3. I. Pulkina: RUSSIAN A practical Grammar with Exercise. Russky Yazik. Pub. H. Moscow.
4. Dictionaries: English -Russian dictionary, Russian -English dictionary.
5. B.I. Balin and R.M.Bakaya: An Introductory Russian course for students of Science and technology, Asia publishing house, Delhi.

SEMESTER–III**FRL–201: FRENCH****PAPER–I (COMPOSITION & GRAMMAR)****Time allowed: 3 Hours****Max. Marks: 40****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Grammar exercises based on textbook

SECTION–B

Grammar exercises based on textbook

SECTION–C

Short answer questions based on vocabulary of textbook

SECTION–D

Dialogue on a given situation/ messages (2)

Prescribed Book: “CONNEXIONS-2” by Regine Merieux & Yves Loiseau, Published by Didier (UNITS 1-6)

Supplementary reading:

Nouveau sans Frontieres 2 BY PHILIPPE Dominique & Jacky Girardet

SEMESTER–III**FRENCH****PAPER–II (TRANSLATION & LITERATURE)****Time allowed: 3 Hrs.****Max. Marks: 40****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Translation from French to English.

SECTION–B

Translation from English to French.

SECTION–C

Summary of one of the poems studied:

Dejeuner du matin - Jacques Prevert**Le Renard et le corbeau** –Jean de la Fontaine**La blanche neige** – Apollinaire**SECTION–D**Conte de Fe'e –“**La belle au bois dormant**” – Charles Perrault (short answers /summary)

**SEMESTER-III
FRENCH**

PAPER-III (ORAL)

Max. Marks: 20

Reading of a text	–	05
Dictation	–	05
Conversation	–	05
Oral Comprehension	–	05

Prescribed Book: “CONNEXIONS-2” by Regine Merie Yves Loiseau, Published by Didier
(Units 1-6)

SEMESTER–III

URDU

URL–201: PROSE AND POETRY

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Courses of Study

Introduction to Literary contribution of the following poets and prose writers:

Poets: Mir Taqi Mir, Asad-ullah-Khan Ghalib, Nazir Akbarabadi, Brij Narain Chakbast & Jigar Muradabadi

Prose Writers: (Sir Syed Ahmad Khan, Mohamad Hussain Azad, Altaf Husain Hali, Munshi Prem Chand and Rashid Ahmad Siddiqui)

SECTION–A

Passages for Translation

SECTION–B

Stanzas for explanation (four out five)

SECTION–C

Direct Questions on poets studied

SECTION–D

Questions on poets studied

Books Prescribed:-

Urdu Nasr-o-Nazm, published by Education Book House, A.M.U. Market, Aligarh

Books Recommended:-

1. Mukhtasar Tarikh-Adab-e- Urdu by Aijaz Husain, Education Book House, A.M.U. Market, Aligarh.
2. Urdu Zaban-o-Adab ka Khaka by Khushhal Zaidi, Edara Bazme Khizre Rah, 80- Ghaffar Manzil Jamianagar, New Delhi, 110025.

**SEMESTER-III
PERSIAN
PRL-201: PROSE AND POETRY**

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Courses of Reading

Prose:-

Azan-e-Maghrib by Saeed Nafisi (Page-171)

Khana-e-Pidari by Saeed Nafisi (Page-178)

Khud-Kushi by Mohammad Hijazi (Page-199)

Eidi by Mohammad Hijazi (Page-205)

Poetry:-

a) Ghazaliyat -e- Hafiz

Agar An Turk Shirazi Badast Arad Dile Mara

Dil Miravad z Dastam Sahib Dilan Khudara

Saqi Banoor -e-Bade Bar Afroz Jam-e-Ma. (Pages 4-8)

b) Ghazaliyat-e-Khusrau

Jaan Z tan Burdi-o-Dar Jani Hanuz

Madeh Pindam Keh Man Dar Sene Sauda-e-Digar Daram

Janan Shabi Bakoo-e-Ghariban Maqam Kun (Pages 24-25)

Qasida Mlik-ush-Sho'ara Bahar (Jughad-e-jang)

1. Fughan z Jughad-e-Jang-o- Marghwai-o. (Pages-54-59)

Masnavi-Maulana Room

Bishno Az Nai Choon Hikayat Mee Kunad

Hikayat Ashiq Shudan-e-Badshah Bar Kaneezak

Zahir Shudan-e-Ijz -e-Hakiman Az Mo'aliya-e-Kaneezak

Badshah b Dargah-e-Khuda-o-Khwab Didan Shah Wali Ra (Pages 117-133)

SECTION-A

Passages for Translation

SECTION-B

Stanzas for explanation

SECTION-C

Questions on life and works of poets studied

SECTION-D

Questions on life and works of writers studied

Books Prescribed:-

Nisab-e-Jadeed-e-Farsi, Published by Jyed Press Ballimaran Delhi-6 and available from Maktaba Jamia, Urdu Bazaar, Jama Masjid, Delhi-6

Books Recommended:-

1. Jadid Farsi Shai'ri by Dr. Mohd. Taqi Ali Abidi
2. Jadid Farsi Shai'ri by Dr. Munib-ur-Rehman
3. Asari Farsi Shai'ri by Dr. Syed Ahsan- uz-Zafar
4. Masnaviyat-e-fani Kashmiri by Iraq Raza Zaidi.

SEMESTER-III
SANSKRIT (ELECTIVE)
%ukVd rFkk 0; kdj .k½

l e; &3 ?k. Vs

i wkkzd&100

i / u&i = dk ek/; e fglnh gksxA mYkj l d'r@fglnh@i atkch@vaxst# ea gks l drs gA

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

मध्यमव्यायोग : पद्यों की सप्रसंग व्याख्या।

SECTION-B

मध्यमव्यायोग के श्लोक/सूक्तियों की सप्रसंग व्याख्या।
मध्यमव्यायोग के प्रश्न : सार, पात्र चित्रण, नायक, कथा वस्तु, आदि।

SECTION-C

धातु रूप- भ्वादिगण - रक्ष्, पा, नम्।
अदादिगण -अस्।
तुदादिगण-तुद्, सिच्, प्रच्छ्, मुच्, मिल्।
तनादिगण -कृ।
चुरादिगण - चुर्, कथ्, भक्ष्, चिन्त्, रच्।
इन सभी धातुओं के लट् एवं लोट् लकारों के रूप।
व्यंजन सन्धि।
छन्द - अनुष्टुप्, वंशस्थ, इन्द्रवज्रा, उपेन्द्रवज्रा, उपजाति, मालिनी, विद्युन्माला, वसन्ततिलका।

SECTION-D

यूनिट तीन में निर्धारित धातुओं के लङ्, विधिलिङ्, लृट् लकारों में रूप।
तद्धित प्रत्यय - त्व, तल्, मयट्, तरप्, तमप्।

lk' ui = fuekZk funZk

SECTION-A

Question-I मध्यमव्यायोग के 4 पद्यों की सप्रसंग व्याख्या। = 20 अंक
Question-II मध्यमव्यायोग के 4 पद्यों की सप्रसंग व्याख्या। = 20 अंक

SECTION-B

Question-III मध्यमव्यायोग से 4 श्लोक/सूक्तियों की सप्रसंग व्याख्या। = 20 अंक
Question-IV निर्धारित प्रश्नों में से 2 का उत्तर पूछा जाए। = 20 अंक

SECTION-C

Question-V निर्धारित में से 4 धातुओं के लट् एवं लोट् लकारों में रूप पूछे जायेंगे = 20 अंक
Question-VI क. निर्धारित सन्धि में से 5 का सन्धि/सन्धिच्छेद = 10 अंक
ख. निर्धारित छन्दों में से 2 का लक्षण एवं उदाहरण = 10 अंक

SECTION-D

- Question-VII** निर्धारित में से 4 धातुओं के लङ्, विधिलिङ् एवं लृट् लकारों में रूप पूछे जायेंगे = 20 अंक
- Question-VIII** 10 शब्दों के साथ निर्धारित तद्धित प्रत्ययों में से प्रत्यय देकर उनके तद्धितान्त रूप पूछे जायेंगे = 20 अंक

वुक्कल र खड्क &

1. मध्यमव्यायोग (भास)
2. बृहद् अनुवाद चन्द्रिका (चक्रधर हंस नौटियाल), मोती लाल बनारसी दास, दिल्ली।

SEMESTER-III
FUNCTIONAL SANSKRIT (VOCATIONAL)

Time: 3 Hours

Max. Marks: 100

प्रश्न पत्र हिन्दी में होगा।

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Syllabus

SECTION-A

इन बिन्दुओं से संबंधित विस्तृत अध्ययन :
संस्कार विधियां
सीमन्तोनयन
जातकर्म

SECTION-B

इन बिन्दुओं से संबंधित विस्तृत अध्ययन :
नामकरण
कर्णवेध
अन्नप्राशनम्

SECTION-C

इन बिन्दुओं से संबंधित विस्तृत अध्ययन :
चूडाकर्म
विद्यारम्भ
उपनयन

SECTION-D

इन बिन्दुओं से संबंधित विस्तृत अध्ययन :
समावर्तन
अन्त्येष्टि
संबंधित संस्कारों का महत्त्व

lk' ui = fuekZk funZk

SECTION-A

Question-I	प्रश्न	= 20 अंक
Question-II	प्रश्न	= 20 अंक

SECTION-B

Question-III	प्रश्न	= 20 अंक
Question-IV	प्रश्न	= 20 अंक

SECTION-C

Question-V	प्रश्न	= 20 अंक
Question-VI	प्रश्न	= 20 अंक

SECTION-D

Question-VII	प्रश्न	= 20 अंक
Question-VIII	प्रश्न	= 20 अंक

SEMESTER–III**ENC201: ENGLISH (COMPULSORY)****Time: 3 Hours****Max. Marks: 50****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Important Note: The textbook *Making Connections* (3rd edition) is significantly different from its 2nd edition. The third edition (by Kenneth J Pakenham, Jo McEntire, Jessica Williams) is to be followed for this course.

Texts Prescribed:

1. *Making Connections* by Kenneth J. Pakenham, Jo McEntire, Jessica Williams, 3rd Edition. CUP.
2. *Moments in Time: An Anthology of Poems*, GNDU, Amritsar.
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP

Texts Suggested:

Oxford Guide to Effective Writing and Speaking by John Seely
A Course in Grammar and Composition by Geetha Nagaraj, Foundation Books, 2006

Syllabus is divided into four sections as mentioned below:**SECTION–A**

English Grammar in Use (Fourth Edition) by Raymond Murphy, CUP: Units 98-130

SECTION–B

Essay writing and *English Grammar in Use*: Units 131-145

SECTION–C

Moments in Time: Poems at Sr. No. 1-6

SECTION–D

Making Connections by Kenneth J. Pakenham, 3rd Edn. CUP: Unit-I (Global Health) and Unit-II (Multicultural Societies)

**SEMESTER–III
ENGLISH (ELECTIVE)**

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Books Prescribed:

1. *Animal Farm* by George Orwell
2. *Fresh Showers*, G.N.D.U. Amritsar
3. *New Directions* (Part 1-3)
4. *Better Pronunciation of English* by J.D. O'Connor

Course Contents:

The syllabus is divided in four sections as mentioned below:

SECTION–A

Animal Farm—Complete Text

SECTION–B

Fresh Showers

The following poems are to be studied:

- (i) “Belinda’s Toilet,” (ii) “London,” (iii) “The Tables Turned,” (iv) “Man and Nature,”
(v) “The Cloud,” (vi) “Voices,” (vii) “Futility,” (viii) “Day Break,” (ix) “Self’s the Man,”
(x) “Spinster,” (xi) “Leave This Chanting,” (xii) “The Poet,” (xiii) “Guru”.

SECTION–C

New Directions-Part 1,2

SECTION–D

1. *New Directions* Part-3

2. **Transcription of Words:** agony, antonym, capable, committee, decorum, aeroplane, calendar, privacy, absolute, academy, academic, advertisement, adversity, allopathic, mathematics, automobile, biography, biology, competition, competitive, certificate, certify, democracy, capacity, magnificent, photography, photograph, photographic, vindictive, celebrity

SECTION-A

- Two questions will be set from **Section-A** of the syllabus. One essay type question based on the theme, plot, characterization etc would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

SECTION-B

- Two questions will be set from **Section-B** of the syllabus. One essay type question based on the theme, plot, characterization would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. One of the questions may be a reference to the context of a stanza. The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

SECTION-C

- Two questions will be set from **Section-C** of the syllabus. One essay type question based on the theme, plot etc. of the prescribed text would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

SECTION-D

- Two questions would be set from **Section-D** of the syllabus. Ten words for transcription (five out of the prescribed list and any other five polysyllabic words) would be set in each question. Each word would carry two marks. The students would be required to attempt any one of the two sets of questions. (10x2=20)

SEMESTER–III**FUNCTIONAL ENGLISH (VOCATIONAL)****WRITING SKILLS****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Objective:

The objective is to teach the students the technique of writing and developing their power of expression through composition. Descriptive writing; report writing; script writing for announcement, comparing should be administered.

Books Prescribed:

- a) *Essentials of Grammar and Composition* by Legget et. al., Prentice Hall.
- b) *Collins Cobuild Grammar of English*
- c) *Study Writing: A Course in Writing Skills for Academic Purposes* by Liz Hamp-Lyons & Ben Heasley, CUP

Course Contents:**SECTION–A**

Basic Sentence Faults: Faulty pronoun reference; shift in point of view; misplaced parts; dangling constructions, Manuscript mechanics and punctuation

SECTION–B

Textual Cohesion: reference, ellipsis, substitution & repetition; Lexical and Conjunctive cohesion, Sentence Variation and effective sentences

SECTION–C

Effective Paragraphs. Paraphrase, summary and Precis of prose passages

SECTION–D

Academic and personal writing styles, Grammar of academic discourse, Writing about events in time and connecting events in text

SEMESTER-III

PUNJABI (COMPULSORY) ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

ਸਮਾਂ : ਤਿੰਨ ਘੰਟੇ

ਕੁਲ ਅੰਕ : 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ ਬਰਾਬਰ ਹਨ।
4. ਪੇਪਰ ਸੈਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ
ਸੈਕਸ਼ਨ - ਏ

ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਵਾਰਤਕ (ਸੰਪਾ. ਡਾ. ਗੁਰਬਚਨ ਸਿੰਘ ਤਾਲਿਬ),
ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਮਨ ਦੀ ਮੋਜ਼, ਗੁਰੂ ਸੰਗਤ ਬਾਣੀ, ਕਾਠ ਦੀ ਰੋਟੀ, ਬੁਲ੍ਹੇ ਸਾਹ ਦੀ ਕਾਵਿ ਕਲਾ
ਪਾਠਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)
(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ/ਕਲਾ ਪੱਖ)

ਸੈਕਸ਼ਨ - ਬੀ

ਚੋਣਵੇਂ ਪੰਜਾਬੀ ਇਕਾਂਗੀ (ਇਕਾਂਗੀ ਸੰਗ੍ਰਹਿ)
ਸੰਪਾ. ਡਾ. ਰਮਿੰਦਰ ਕੌਰ, ਕਸਤੂਰੀ ਲਾਲ ਐਂਡ ਸੰਨਜ਼, ਅੰਮ੍ਰਿਤਸਰ।
ਵਿਸ਼ਾ ਵਸਤੂ/ਪਾਤਰ ਚਿਤਰਨ/ਰੰਗ-ਮੰਚ ਦੇ ਪੱਖ ਤੋਂ

ਸੈਕਸ਼ਨ - ਸੀ

- (ੳ) ਸੰਖੇਪ ਰਚਨਾ (ਪ੍ਰੈਸੀ)
(ਅ) ਦਿੱਤੇ ਪੈਰ੍ਹੇ ਵਿਚੋਂ ਅਸੁੱਧ ਸ਼ਬਦ-ਜੋੜਾਂ ਨੂੰ ਸੁੱਧ ਕਰਨਾ

ਸੈਕਸ਼ਨ - ਡੀ

ਮੂਲ ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
(ਭਾਵੇਂਸ਼, ਸ਼ਬਦ, ਵਾਕੀਸ਼, ਉਪ-ਵਾਕ ਅਤੇ ਵਾਕ)

SEMESTER-III

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜੀਤ ਸਿੰਘ ਸੀਤਲ, ਵਾਰਤਕ ਤੇ ਵਾਰਤਕ ਸ਼ੈਲੀ, ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ, ਚੰਡੀਗੜ੍ਹ।
2. ਗੋਬਿੰਦ ਸਿੰਘ ਲਾਂਬਾ, ਪੰਜਾਬੀ ਵਾਰਤਕ ਤੇ ਵਾਰਤਕਕਾਰ, ਅਮਰਜੀਤ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਪਟਿਆਲਾ।
3. ਸਤਿੰਦਰ ਸਿੰਘ ਨੂਰ, ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਵਾਰਤਕ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
4. ਡਾ. ਜਸਵਿੰਦਰ ਸਿੰਘ, ਡਾ. ਮਾਨ ਸਿੰਘ ਢੀਡਸਾ, ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (ਆਧੁਨਿਕ ਕਾਲ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
5. ਸਤੀਸ਼ ਕੁਮਾਰ ਵਰਮਾ, ਪੰਜਾਬੀ ਨਾਟਕ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
6. ਗੁਰਦਿਆਲ ਸਿੰਘ ਫੁੱਲ, ਪੰਜਾਬੀ ਇਕਾਂਗੀ : ਸਰੂਪ, ਸਿਧਾਂਤ ਤੇ ਵਿਕਾਸ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
7. ਬ੍ਰਹਮਜਗਦੀਸ਼ ਸਿੰਘ, ਪੰਜਾਬੀ ਨਾਟਕ ਤੇ ਇਕਾਂਗੀ : ਸਿਧਾਂਤ, ਇਤਿਹਾਸ ਤੇ ਪ੍ਰਵਿਰਤੀਆਂ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
8. ਖੋਜ ਪਤ੍ਰਿਕਾ (ਨਾਟ ਸ਼ੈਲੀਆਂ ਵਿਸ਼ੇਸ਼ ਅੰਕ),
9. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ : ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ।
10. ਹਰਕੀਰਤ ਸਿੰਘ ਤੇ ਗਿਆਨ ਲਾਲ ਸਿੰਘ, ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਨ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ।
11. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਬੋਧ, ਕਸਤੂਰੀ ਲਾਲ ਐਂਡ ਸੰਨਜ਼, ਅੰਮ੍ਰਿਤਸਰ।

SEMESTER-III

PUNJABI (ELECTIVE) ਪੰਜਾਬੀ (ਇਲੈਕਟਿਵ)

ਸਮਾਂ ਤਿੰਨ ਘੰਟੇ

ਕੁਲ ਅੰਕ: 100

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ ਬਰਾਬਰ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

ਸੈਕਸ਼ਨ- ਏ

ਸ਼ਰੋਮਣੀ ਪੰਜਾਬੀ ਕਾਵਿ (ਭਾਗ I)
(ਨਾਥ ਬਾਣੀ, ਭਗਤ ਬਾਣੀ, ਗੁਰਬਾਣੀ)
(ਸੰਪਾ. ਡਾ. ਮਨਜਿੰਦਰ ਸਿੰਘ)
(ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ)

ਸੈਕਸ਼ਨ- ਬੀ

ਪੰਜਾਬੀ ਕਹਾਣੀ ਦੀ ਸ਼ਾਹਰਾਹ (ਸੰਪਾ. ਡਾ. ਰਮਿੰਦਰ ਕੌਰ),
ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ/ਪਾਤਰ-ਚਿਤਰਨ)

ਸੈਕਸ਼ਨ- ਸੀ

ਸਾਹਿਤ ਆਲੋਚਨਾ ਨਾਲ ਸੰਬੰਧਿਤ ਮੂਲ ਸੰਕਲਪ : ਬਿੰਬ, ਪ੍ਰਤੀਕ, ਬੁਣਤੀ ਤੇ ਬੁਣਤਰ, ਕਥਾ ਤੇ ਕਥਾਨਕ,
ਪਾਤਰ ਉਸਾਰੀ, ਰੂਪ ਤੇ ਵਸਤੂ, ਅਨੁਕਰਣ, ਵਿਰੋਚਨ

ਸੈਕਸ਼ਨ- ਡੀ

ਸਾਹਿਤ ਦੇ ਰੂਪ : ਵਾਰ, ਜੰਗਨਾਮਾ, ਕਿੱਸਾ, ਕਾਫ਼ੀ : ਪਰਿਭਾਸ਼ਾ, ਪ੍ਰਕਿਰਤੀ ਅਤੇ ਤੱਤ

SEMESTER-III

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜਗਬੀਰ ਸਿੰਘ, ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (ਆਦਿ ਕਾਲ - ਭਗਤੀ ਕਾਲ), ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
2. ਪਰਮਿੰਦਰ ਸਿੰਘ, ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (ਆਦਿ ਕਾਲ ਤੋਂ 1700 ਤੱਕ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
3. ਕਿਰਪਾਲ ਸਿੰਘ ਕਸੇਲ ਤੇ ਪਰਮਿੰਦਰ ਸਿੰਘ, ਪੰਜਾਬੀ ਸਾਹਿਤ ਦੀ ਉਤਪਤੀ ਤੇ ਵਿਕਾਸ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ।
4. ਬ੍ਰਹਮਜਗਦੀਸ਼ ਸਿੰਘ, ਸਾਹਿਤ ਸੰਕਲਪ ਕੋਸ਼, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
5. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਸਾਹਿਤ ਕੋਸ਼ ਪਰਿਭਾਸ਼ਿਕ ਸ਼ਬਦਾਵਲੀ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
6. ਨਿਰਮਲ ਸਿੰਘ ਚਾਨਣ, ਪਿੰਗਲ ਤੇ ਸਾਹਿਤ ਦੇ ਰੂਪ, ਮੰਗਲ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
7. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ, ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
8. ਟੀ.ਆਰ.ਵਿਨੋਦ, ਪੰਜਾਬੀ ਕਹਾਣੀ : ਇਕ ਅਧਿਐਨ, ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

SEMESTER-III

FUNCTIONAL PUNJABI (VOCATIONAL) (ਪੰਜਾਬੀ ਪ੍ਰਕਾਰਜ)

(ਥਿਊਰੀ)

ਪਰਚਾ ਏ : ਲਿਖਣ ਸ਼ੈਲੀਆਂ	ਕੁਲ ਅੰਕ : 100
ਪਰਚਾ ਬੀ : ਰਸਮੀ ਲਿਖਤ	ਅੰਕ : 50
ਸਮਾਂ : 3 ਘੰਟੇ	ਅੰਕ : 50
	ਕੁਲ ਅੰਕ : 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿੱਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

ਪਾਠ-ਕ੍ਰਮ

ਸੈਕਸ਼ਨ-ਏ

ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਵਾਕ ਬਣਤਰ ਨਾਲ ਜਾਣ-ਪਛਾਣ

ਸੈਕਸ਼ਨ-ਬੀ

ਪੰਜਾਬੀ ਦਾ ਵਾਕ ਪ੍ਰਬੰਧ ਅਤੇ ਕਾਰਕ ਪ੍ਰਬੰਧ

ਸੈਕਸ਼ਨ-ਸੀ

ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਰਾਜਸਟਰਾਂ ਸੰਬੰਧੀ ਜਾਣ-ਪਛਾਣ

ਸੈਕਸ਼ਨ-ਡੀ

ਪ੍ਰਾਪਤ ਲਿਖਣ ਸ਼ੈਲੀਆਂ ਨਾਲ ਜਾਣ ਪਛਾਣ ਕਰਾਉਣਾ ਅਤੇ ਰਸਮੀ ਪੱਧਰ 'ਤੇ ਲਿਖਣ ਦਾ ਅਭਿਆਸ ਕਰਾਉਣਾ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼, ਸਿਧਾਂਤਕ ਭਾਸ਼ਾ ਵਿਗਿਆਨ, ਪੰਜਾਬ ਪ੍ਰਕਾਸ਼ਨ, ਚੰਡੀਗੜ੍ਹ।
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ।
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ : ਸਰੋਤ ਤੇ ਸਰੂਪ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
4. ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸਰੋਤ ਤੇ ਬਣਤਰ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
5. ਰਣਜੀਤ ਕੌਰ, ਕਾਰਜੀ ਪੰਜਾਬੀ, ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

SEMESTER-III

FUNCTIONAL PUNJABI (VOCATIONAL) (ਪੰਜਾਬੀ ਪ੍ਰਕਾਰਜੀ)

ਪ੍ਰਕਟਾਕਲ

ਸਮਾਂ : 2 ਘੰਟੇ

ਪਰਚਾ ਬੀ - ਰਸਮੀ ਲਿਖਤਾ

ਕੁਲ ਅੰਕ: 50

ਨੋਟ : ਪ੍ਰਕਟਾਕਲ ਦੇ ਪੇਪਰ ਵਿਚ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸੁਣਨ-ਸਮਝਣ-ਲਿਖਣ ਯੋਗਤਾ ਦੀ ਪ੍ਰਾਪਤੀ ਲਈ
ਜਾਵੇਗੀ)

ਭਾਸ਼ਾ ਪ੍ਰਯੋਗਸ਼ਾਲਾ ਵਿਚ ਅਭਿਆਸ ਕਰਨਾ :

ਪਾਠ-ਕ੍ਰਮ

ਸੈਕਸ਼ਨ-ਏ

ਪੰਜਾਬੀ ਦੇ ਉਪ-ਭਾਸ਼ਾਈ ਉਚਾਰਨ ਨੂੰ ਸੁਣ ਕੇ ਰਿਪੋਰਟ ਤਿਆਰ ਕਰਨੀ।

ਸੈਕਸ਼ਨ-ਬੀ

ਸੁਣੇ ਗਏ ਸ਼ਬਦਾਂ ਦੇ ਆਧਾਰ 'ਤੇ ਸਾਧਾਰਣ ਤੇ ਸੰਯੁਕਤ ਵਾਕ ਬਣਾਉਣੇ।

ਸੈਕਸ਼ਨ-ਸੀ

ਭਾਸ਼ਣ ਨੂੰ ਸੁਣ ਕੇ ਸੰਖੇਪ ਰੂਪ ਤਿਆਰ ਕਰਨਾ।

ਸੈਕਸ਼ਨ-ਡੀ

ਰਿਕਾਰਡ ਕੀਤੀਆਂ ਸ਼ਬਦਾਂ ਨੂੰ ਸੁਣ ਕੇ ਲਿਖਣਾ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਰਣਜੀਤ ਕੌਰ, ਕਾਰਜੀ ਪੰਜਾਬੀ, ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

SEMESTER-III

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

ਸਮਾਂ: 3 ਘੰਟੇ

ਕੁਲ ਅੰਕ: 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ ਬਰਾਬਰ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਪਾਠ-ਕ੍ਰਮ

ਸੈਕਸ਼ਨ-ਏ

ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ
ਸਰਲ ਅੰਗਰੇਜ਼ੀ ਪੈਰੇ ਦਾ ਪੰਜਾਬੀ ਅਨੁਵਾਦ

ਸੈਕਸ਼ਨ-ਬੀ

ਕਵਿਤਾਵਾਂ

- (ੳ) ਸਮਾਂ (ਭਾਈ ਵੀਰ ਸਿੰਘ)
- (ਅ) ਖੈਰ ਪੰਜਾਬੀ ਦੀ (ਫ਼ੀਰੋਜ਼ਦੀਨ ਸਰਫ਼)
- (ੲ) ਅੰਬੀ ਦਾ ਬੂਟਾ (ਪ੍ਰੋ. ਮੋਹਨ ਸਿੰਘ)
- (ੳ) ਬਿਰਹੋਂ ਦੀ ਰੜਕ (ਸ਼ਿਵ ਕੁਮਾਰ) (ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ; ਸਾਰ)

ਸੈਕਸ਼ਨ-ਸੀ

ਕਹਾਣੀਆਂ

- (ੳ) ਭੂਆ (ਨਾਨਕ ਸਿੰਘ)
- (ਅ) ਦੁੱਧ ਦਾ ਛੱਪੜ (ਕੁਲਵੰਤ ਸਿੰਘ ਵਿਰਕ)
- (ੲ) ਸਾਂਝੀ ਕੰਧ (ਸੰਤੋਖ ਸਿੰਘ ਧੀਰ)
- (ੳ) ਉਹ ਸੋਚਦੀ (ਦਲੀਪ ਕੌਰ ਟਿਵਾਣਾ) (ਵਿਸ਼ਾ-ਵਸਤੂ; ਸਾਰ)

ਸੈਕਸ਼ਨ-ਡੀ

ਨਿਬੰਧ

- (ੳ) ਘਰ ਦਾ ਪਿਆਰ (ਤੇਜਾ ਸਿੰਘ)
- (ਅ) ਖੁਸ਼ਾਮਦੀ ਨਾਲ (ਹਰਿੰਦਰ ਸਿੰਘ ਰੂਪ)
- (ੲ) ਆਓ, ਗੱਲਾਂ ਕਰੀਏ (ਨਰਿੰਦਰ ਸਿੰਘ ਕਪੂਰ)
- (ੳ) ਮਨੁੱਖ ਕੁਦਰਤ ਦੀ 'ਨੇਕ ਔਲਾਦ' ਨਹੀਂ (ਸੁਰਿੰਦਰ ਮੰਡ) (ਵਿਸ਼ਾ-ਵਸਤੂ; ਸਾਰ)

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਰਾਜਿੰਦਰਪਾਲ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਕਵਿਤਾ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
2. ਬਲਦੇਵ ਧਾਲੀਵਾਲ, ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
3. ਜਸਵਿੰਦਰ ਸਿੰਘ ਉੱਪਲ, ਪੰਜਾਬੀ ਕਹਾਣੀਕਾਰ, ਨੈਸ਼ਨਲ ਬੁੱਕ ਸ਼ਾਪ, ਦਿੱਲੀ।
4. ਬਲਬੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ ਸਰੂਪ ਸਿਧਾਂਤ ਤੇ ਵਿਕਾਸ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
5. ਖੋਜ ਪਤ੍ਰਿਕਾ (ਨਿਬੰਧ ਵਿਸ਼ੇਸ਼ ਅੰਕ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

**SEMESTER-III
HINDI (ELECTIVE)**

0; k[; k ds fy, fu/kkTjr Nfr

I e; & 3 ?k. Vs

i w kkTj % 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

I D'ku&

0; k[; k ds fy, fu/kkTjr Nfr

1. काव्य-उत्कर्ष, संपादक-डॉ. सुधा जितेन्द्र, लोकभारती प्रकाशन, नई दिल्ली, 2016
निर्धारित कवि: कबीर, गुरु नानक देव, सूरदास, तुलसीदास, (निर्धारित पाठ्यक्रम में तुलसीदास के पहले पांच पद हटा दिए गये हैं और शेष पाठ्यक्रम में हैं) रविदास, बिहारी, रहीम, गुरु तेग बहादुर।

I D'ku&ch

काव्य उत्कर्ष पुस्तक में निर्धारित कवियों का जीवन-परिचय एवं कविताओं से सम्बन्धित प्रश्न।

I D'ku&I h

हिन्दी साहित्य का इतिहास, प्रकाशक, गुरु नानक देव यूनिवर्सिटी, अमृतसर
हिन्दी साहित्य के आदिकाल का अध्ययन अपेक्षित है। तत्संबंधी प्रमुख परिक्षेत्र-आदिकाल का नामकरण, आदिकाल: परिस्थितियां, विशेषताएं, सिद्ध और रासों साहित्य : परिचय और विशेषताएं।

I D'ku&Mh

vydkj fu: i.k%

अनुप्रास, यमक, उपमा, रूपक, प्रतीक, विरोधाभास (छः अलंकार) परिभाषा, लक्षण सोदाहरण परिचय।
स्वर, व्यंजन: परिभाषा, लिंग, वचन, प्रचलित संधि और संधि विच्छेद

I gk; d i rda

- 1) श्रेष्ठ हिन्दी व्याकरण, व्यथित हृदय, दिल्ली, आधुनिक प्रकाशन, 2004
- 2) आधुनिक हिन्दी व्याकरण, श्री शरण, डॉ. अशोक कुमार रस्तोगी, चिन्तन प्रकाशन, 2001
- 3) हिन्दी साहित्य का इतिहास, प्रकाशक, गुरु नानक देव यूनिवर्सिटी, अमृतसर

SEMESTER-III

Hindi Patrakarita (Vocational)

fglUnh i =dkfjrk %oksd's kuy%
fglUnh i =dkfjrk vksj fi M ehfM; k

I e; % 3 ?k&/s

i wkk&d% 60

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

fu/kkfj r i kB; Øe%

I D'ku&

fi M ehfM; k vksj enzk&dyk

- भारत में प्रिंट मीडिया और मुद्रण कला का विकास
- प्रिंट मीडिया का संशक्त माध्यम : समाचार पत्र
- समाचार – संकलन : प्रमुख स्रोत
- समाचार – समितियाँ

I D'ku&ch

enzk dyk % Hkkj r ea enzk dyk

- पृष्ठ विन्यास अथवा पृष्ठ सज्जा
- पृष्ठ सज्जा के विविध अंग
- पृष्ठ सज्जाकार की योग्यताएं
- ले-आउट : अर्थ और विविध पहलू
- ले-आउट के प्रकार

I D'ku&I h

fglUnh ea I ekpkj ys[ku

- समाचार – आमुख
- समाचार – शीर्षकीकरण
- समाचार – पृष्ठ-सज्जा प्रस्तुतीकरण
- समाचार – प्रूफ-संशोधन
- & समाचार – विशेषताएं
- & समाचार – भाषा

I D'ku&Mh

I Ei knu dyk

- सम्पादन कला : अर्थ एवं परिभाषा
- सम्पादन कला के सिद्धांत
- सम्पादन का उद्देश्य
- सम्पादक : गुण, योग्यताएं एवं दायित्व

I gk; d i qrd

- 1) पत्रकारिता एवं सम्पादन कला, नेहा वर्मा, दिल्ली, संजय प्रकाशन।
- 2) प्रिंट मीडिया : सिद्धांत एवं व्यवहार रूपचन्द्र गोतम, श्री नटराज प्रकाशन, 2008

SEMESTER-III

Hindi Patrakarita (Vocational)

fgllnh i =dkfj rk %oksd's kuy½

i z; ksx vksj ekf [kdh

i wkkzd% 40

- विद्यार्थियों को प्रति समस्तर 40 अंक की प्रयोग पुस्तिका तैयार करनी होगी। जिसमें 20 अंक मौखिक परीक्षा के और 20 अंक प्रयोग-पुस्तिका के होंगे।
- प्रयोग-पुस्तिका का आकलन और मौखिक-परीक्षा गुरु नानक देव विश्वविद्यालय द्वारा निर्धारित परीक्षा-नियमों के अनुसार की जाएगी।

i z; ksx ds fo"k;

- किसी भी समाचार-पत्र में से किसी अनुच्छेद की प्रूफ रीडिंग का अभ्यास।
- हिन्दी के समाचार-पत्रों में से किसी अधिकारी/वरिष्ठ नेता के भाषण का सारांश तैयार करने का अभ्यास।
- सम्पादकीय पृष्ठ-सज्जा का अभ्यास।
- समाचार – पत्रों के विविध स्तंभ लेखन का अभ्यास।
(रिपोर्ताज, फीचर, व्यंग्य (कार्टून), वार्ता/साक्षात्कार आदि)

SEMESTER-III

Functional Hindi (Vocational)

QD'kuy fglñh %oksd's kuy½
fVli .k] ik: i ys[ku] ifronu , oa fglñh I kfgR; dk HkfDrdky
I e; % 3 ?k/s i wkkd % 60

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

fu/kkfjr ikB; Øe%

I D'ku&
प्रशासनिक पदनाम (शब्दावली साथ संलग्न है)
I D'ku&ch

fVli .k] ik: i % I kekU; ifjp;

- टिप्पण : अर्थ और परिभाषा
- टिप्पण : प्रकार
- टिप्पण : विशेषताएँ और आवश्यक औपचारिकताएँ
- टिप्पण : निर्माण में ध्यान देने योग्य बातें
- टिप्पण : अन्तिम रूप देना
- टिप्पण : भाषा और शैली
- प्रारूप : अर्थ और परिभाषा
- प्रारूप : अन्तिम रूप देना
- प्रकरण ब्यौरा(Case History)
- केस तैयार करना
- परिणाम तक पहुँचना और कार्यवाही की प्रस्तावना
- आक्षरिक पर्ची (Flag of reference)

I D'ku&I h
ifronu % vFKZ vkS i fjHkk"kk

- प्रतिवेदन : स्वरूप, विधि
- प्रतिवेदन : लेखन के गुण
- प्रतिवेदन : क्षेत्र, प्रकार

I D'ku&Mh

fglñh I kfgR; dk HkfDrdky

- नामकरण
- परिस्थितियाँ
- विशेषताएँ (सगुण व निर्गुण काव्यधारा)
- स्वर्ण-युग

I gk; d i rda

1. प्रयोजनमूलक हिन्दी सिद्धांत और प्रयोग, दंगल झाल्टे, विद्या विद्वान, नई दिल्ली।
2. प्रयोजनमूलक हिन्दी अधुनातनआयाम, अम्बादास देशमुख, शैलजा प्रकाशन, कानपुर, 2006
3. हिन्दी साहित्य का इतिहास (भाग-1), अविनाश शर्मा, गुरु नानक देव यूनिवर्सिटी, अमृतसर 2003

SEMESTER-III
Functional Hindi (Vocational)
QD' kuy fglinh %okds kuy½
i z; ksx vksj ekf [kdh

i wkkzd% 40

- विद्यार्थियों को प्रति समस्तर 40 अंक की प्रयोग पुस्तिका तैयार करनी होगी। जिसमें 20 अंक मौखिक परीक्षा के और 20 अंक प्रयोग-पुस्तिका के होंगे।
- प्रयोग-पुस्तिका का आंकलन और मौखिक-परीक्षा गुरु नानक देव विश्वविद्यालय द्वारा निर्धारित परीक्षा-नियमों के अनुसार की जाएगी।

i z; ksx ds fo"k;

- टिप्पण-लेखन का अभ्यास।
- प्रारूप के अन्तर्गत कोई एक केस तैयार करना।
- प्रतिवेदन का नमूना तैयार करना।
- टिप्पण, प्रारूपण व प्रतिवेदन के किसी एक नमूने की पावर-पाइंट प्रस्तुति।

पेपर-1, फंक्शनल हिन्दी (निर्धारित पदनाम)
(क) प्रशासनिक पदनाम

1.	अतिरिक्त न्यायाधीश	Additional Judge
2.	अतिरिक्त परीक्षा नियंत्रक	Additional Examination Controller
3.	अधिवक्ता	Advocate
4.	अधिष्ठाता	Presiding Officer
5.	अध्यक्ष	Speaker, Chairman
6.	अधिग्रहण अधिकारी	Requisition Officer
7.	अधीक्षक	Superintendent
8.	अधीक्षक अभियंता	Superintendent Engineer
9.	अधीनस्थ अभियंता	Subordinate Engineer
10.	अनुसंधान अधिकारी	Investigation Officer
11.	अनुवादक	Translator
12.	अपर न्यायाधीश	Additional Judge
13.	अपर समाहर्ता	Additional Collector
14.	अनुमंडलाधिकारी	Sub Divisonal Officer
15.	अभिकर्ता	Agent
16.	अभियंता	Engineer
17.	अप्रवासी पदाधिकारी	Immigration Authority
18.	अवर सचिव	Under Secretary
19.	आरक्षी अधीक्षक	Police Superintendent

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester-III) (Batch 2021-24)
(Faculty of Languages)

20.	आरक्षी निरीक्षक	Police Inspector
21.	आरक्षी उप महानिरीक्षक	Deputy Inspector General of Police
22.	आरक्षी महानिरीक्षक	Inspector General of Police
23.	आशुलिपिक	Shorthand writer
24.	आचार्य	Professor
25.	उच्चायुक्त	High Commissioner
26.	उपायुक्त	Deputy Commissioner
27.	उत्पाद शुल्क समाहर्ता	Collector of Exise
28.	उद्घोषक	Announcer
29.	उप कुलसचिव	Deputy Registrar
30.	उपाचार्य	Reader
31.	उपमंत्री	Deputy Minister
32.	उप सभापति	Vice President
33.	उप राष्ट्रपति	Deputy Chairman
34.	उपसचिव	Deputy Secretary
35.	उपाध्यक्ष	Deputy Speaker
36.	अंचलाधिकारी	Circle Officer
37.	अंकेक्षक / लेखा परीक्षक	Auditor
38.	कर्मचारीगण	Staff
39.	कर्मशाला प्रबंधक	Work Manager
40.	कराधान अधिकारी	Taxation Officer
41.	कार्य नियोजन अधिकारी	Assignment Officer
42.	कार्य पालक अभियंता	Executive Engineer
43.	कारा-अधीक्षक	Jail-Superintendent
44.	किरानी	Clerk
45.	कुर्की अधिकारी	Attachment officer
46.	कुलपति	Vice Chancellor
47.	कुलाधिपति	Chancellor
48.	कुलानुशासक	Proctor
49.	कुलसचिव	Registrar
50.	कृषि पदाधिकारी	Agriculture Officer
51.	कृषि ऋण सलाहकार	Agricultural Credit Officer
52.	कृषि विकास पदाधिकारी	Agricultural Development Officer
53.	कृषि वैज्ञानिक	Agronomist
54.	खजांची	Treasurer
55.	खाद्य मंत्री	Minister of Food
56.	क्षेत्रीय प्रबंधक	Regional Manager
57.	चकबंदी अधिकारी	Consolidation Officer
58.	चिकित्सा अधिकारी	Medical Officer
59.	जनगणना अधिकारी	Census Officer

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester-III) (Batch 2021-24)
(Faculty of Languages)

60.	जनसंपर्क अधिकारी	Public Relation Officer
61.	जिलाधीश	District Magistrate
62.	टंकक	Typist
63.	थानेदार	Police Station Officer
64.	थाना प्रभारी	Incharge Police Station
65.	दंडाधिकारी	Magistrate
66.	दरबान	Gate keeper
67.	दारोगा	Police sub Inspector
68.	दुभाषिया	Interpreter
69.	दुर्घटना अन्वेषण अधिकारी	Accidents Investigation Officer
70.	नक्शानवीस	Cartographer
71.	निदेशक	Director
72.	निबंधक	Registrar
73.	नियंत्रक	Controller
74.	नियंत्रक महालेखा परीक्षक	Controller & Auditor General
75.	नियंत्रक अधिकारी	Controlling Officer
76.	नियोजन पदाधिकारी	Employment Officer
77.	निर्वाचन आयुक्त	Election Commissioner
78.	न्यायमूर्ति	Justice
79.	न्यायधीश	Judge
80.	प्रखंड विकास पदाधिकारी	Block Development Officer
81.	प्रति कुलपति	Pro-Vice Chancellor
82.	प्रति लिपिक	Copyist
83.	प्रधानमंत्री	Prime-Minister
84.	प्रधानाचार्य	Principal
85.	प्रधानाध्यापक	Headmaster
86.	प्रबंधक	Manager
87.	प्रभारी प्रधानाचार्य	Professor-In-Charge
88.	प्रशासक	Administrator
89.	प्रशाखा पदाधिकारी	Sectional Officer
90.	पर्यवेक्षक	Supervisor
91.	परामर्शी अधिकारी	Advisory Officer
92.	पणन अधिकारी	Marketing Officer
93.	परिचारिका	Nurse
94.	पशु चिकित्सा पदाधिकारी	Veterinary Officer
95.	पशु चिकित्सक	Veterinary Doctor
96.	प्राचार्य	Principal
97.	प्रादेशिक आयुक्त	Regional Commissioner
98.	प्राध्यापक	Lecturer
99.	प्राधिकृत अभिकर्ता	Authorised Agent

100.	प्राधिकारी	Authority
101.	पीठासीन अधिकारी	Presiding Officer
102.	बंदोबस्त पदाधिकारी	Settlement Officer
103.	बेतार तार चालक	Wireless Operator
104.	भर्ती अधिकारी	Recruitment Officer
105.	भंडारपाल	Store Keeper
106.	भारतीय सेना	Indian Army
107.	भुगतान प्राधिकारी	Disbursing Authority
108.	भूमाप शिक्षक	Survey Instructor
109.	भू-राजस्व पदाधिकारी	Land Revenue Officer
110.	महाकारा निरीक्षक	Inspector General of Prisons
111.	महाधिवक्ता	Advocate General
112.	महान्यायवादी	Attorney General
113.	महानिरीक्षक	Inspector General
114.	महाप्रबंधक	Administrator General
115.	महापौर	Mayor
116.	महालेखाकार	Accountant General
117.	महावनपाल	Chief Conservator of Forests
118.	मानव विज्ञानी	Anthropologist
119.	माप-तौल निरीक्षक	Weight & Measurement Inspector
120.	माल प्रशासक	Revenue Administrator
121.	मुख्य अभियंता	Chief Engineer
122.	मुख्य आयुक्त	Chief Commissioner
123.	मुख्य न्यायाधीश	Chief Justice
124.	मुख्य निर्वाचन आयुक्त	Chief Election Commissioner
125.	मुख्यमंत्री	Chief Minister
126.	मूल्यांकन अधिकारी	Evaluation Officer
127.	रख-रखाव अधिकारी	Maintenance Officer
128.	रख-रखाव निरीक्षक	Maintenance Inspector
129.	रक्षा-मंत्री	Defence Minister
130.	राजदूत	Ambassador
131.	राजपत्रित अधिकारी	Gazetted Officer
132.	राज्यपाल	Governor
133.	राजस्व पदाधिकारी	Revenue Officer
134.	राष्ट्रपति	President
135.	रेलमंत्री	Railways Minister
136.	लिपिक-सह-टंकक	Clerk-Cum-Typist
137.	लेखाकार	Accountant General
138.	लेखा-परीक्षक	Auditor
139.	लेखा-परीक्षा-अधिकारी	Audit Officer

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester-III) (Batch 2021-24)
(Faculty of Languages)

140.	लेखा-महापरीक्षक	Auditor General
141.	वन-पदाधिकारी	Forest Officer
142.	वन-रोपण-पदाधिकारी	Afforestation Officer
143.	वरिष्ठ व्याख्याता	Senior Lecturer
144.	व्याख्याता	Lecturer
145.	वाणिज्य मंत्री	Commerce Minister
146.	विक्रय कर पदाधिकारी	Sales Tax Officer
147.	विकास पदाधिकारी	Development Officer
148.	वित्त पदाधिकारी	Finance Officer
149.	वित्तीय परामर्शी	Financial Advisor
150.	वित्त मंत्री	Finance Minister
151.	विदेश मंत्री	Minister Of External Affairs
152.	विधान पार्षद	Member of Legislative Council
153.	विधायक	Member of Legislative Assembly
154.	विधिमंत्री	Minister of Law
155.	विधि सलाहकार	Legal Advisor
156.	विनिमय नियंत्रक	Exchange Controller
157.	विमानन सलाहकार	Aviation Advisor
158.	विश्लेषक सहायक	Analytical Assistant
159.	विशेष कार्याधिकारी	Officer on Special duty
160.	वैद्युतिक	Electrician
161.	शल्य चिकित्सक	Surgeon
162.	शपथ आयुक्त	Oath Commissioner
163.	श्रम पदाधिकारी	Labour Officer
164.	श्रम मंत्री	Labour Minister
165.	शाखा प्रबंधक	Branch Manager
166.	शिक्षा पदाधिकारी	Education Officer
167.	शोध पदाधिकारी	Research Officer
168.	संचार मंत्री	Minister of Communication
169.	सचिव	Secretary
170.	संपदा पदाधिकारी	Estate Officer
171.	सत्यापन अधिकारी	Attesting Officer
172.	सत्र न्यायाधीश	Session Judge
173.	समादेशक	Commandent
174.	समाहर्ता	Collector
175.	समुद्री अधिकारी	Marine Officer
176.	सर्वेक्षक	Serveyour
177.	सहायक	Assistant
178.	स्थानीय प्राधिकारी	Local Authority
179.	संकेत लिपिक	Stenographer

180.	संग्रहालायाध्यक्ष	Curator
181.	संग्रहालय संरक्षक	Custodian of Museum
182.	संयुक्त सचिव	Joint Secretary
183.	संयुक्त निदेशक	Joint Director
184.	संयोजक निदेशक	Convenor
185.	संरक्षक	Patron, Custodian
186.	संशोधक अधिकारी	Revising Officer
187.	सारणीयक	Tabulator
188.	संस्कृति संपर्क अधिकारी	Cultural Relation Officer
189.	संस्कृति मंत्री	Minister of Culture
190.	सांसद	Member of Parliament
191.	सीमा पुलिस निरीक्षक	Boarder Police Inspector
192.	सीमा-शुल्क-समाहर्ता	Collector of Customs
193.	सैनिक अधिकारी	Military Officer

**SEMESTER III
PHYSICAL EDUCATION
(THEORY)**

Time 3 hours

Maximum mark: 100

Theory mark: 60

Practical Marks: 40

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A

1. Meaning of Learning, Nature of skill Learning and laws of learning.
2. Learning Curve.
3. Motivation in Physical education.

SECTION-B

4. Play meaning and Theory.
5. Psychological factors effecting sports performance i.e stress tension, anxiety, aggression.
6. Psychological characteristics of the adolescent in sports situation.

SECTION-C

7. Transfer of training, its application sports situation.
8. Growth and development during childhood;
 - I. Physical
 - II. Mental
 - III. Emotional
 - IV. Inter- Personal social development.
9. Causes of poor performance in India.

SECTION-D

10. Sports and Economy.
11. Sports and Socialization-integration through sports(National & International)
12. Sports, Politics and their relationship.

SEMESTER- III
PHYSICAL EDUCATION
(PRACTICAL)

Marks: 40

Division Marks: athletics (12) + games (12) + ground marking (3+3), Practical Note Book (5), Viva Voce (5)

- **Athletics Performance**----- 200M, Discuss Throw for Boys
200M, Discuss Throw for Girls

- **Games(Boys & Girls)**----- **Fundamental Rules, Performance**
Football
Yoga

Books Recommended:

1. Singh, Kanwaljeet and Singh Inderjeet: Sports Sociology, Friend Publication New Delhi, 2000.
2. Tandan, D.K. et.al, : Scientific basis of physical education and sports Friends Publication New Delhi, 2001.
3. Singh, Ajmer and Gill Jagtar: Essentials of Physical Education and Olympics Movement, Kalyani Publisher, Ludhiana, 2004.
4. Kang, G.S.: Anatomy, Physiology and Health Education Publication Bureau, Punjabi University, Patiala, 2000.
5. Kang, G.S. and Deol, N.S.: An Introduction to Health and Physical Education, 21st Centaury, Patiala, 2008.