

# SYLLABUS

FOR

## B.A./B.Sc.

(12+3 SYSTEM OF EDUCATION)

(Semester–VI)

Examinations: 2019–20



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# GURU NANAK DEV UNIVERSITY AMRITSAR

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**INDEX OF SEMESTER–VI**

<b>Sr.No.</b>	<b>Subject</b>	<b>Page No.</b>
	<b>FACULTY OF ARTS &amp; SOCIAL SCIENCES</b>	
1.	Political Science	5-6
2.	History	7
3.	Journalism and Mass Communication (Vocational)	8
4.	Mass Communication and Video Production (Vocational)	9-10
5.	Sociology	11
6.	Psychology	12-14
7.	Women Empowerment	15
8.	Defence and Strategic Studies	16-18
9.	Geography	19-22
10.	Public Administration	23
	<b>FACULTY OF ECONOMICS &amp; BUSINESS</b>	
11.	Office Management and Secretarial Practice (Vocational)	24-27
12.	Travel and Tourism	28-30
13.	Tourism and Hotel Management (Vocational)	31-32
14.	Tax Procedure and Practices (Vocational)	33-37
15.	Advertising Sales Promotion and Sales Management (Vocational)	38-39
16.	Commerce	40
17.	Tourism and Travel Management (Vocational)	41-42
18.	Economics	43
19.	Industrial Economics	44
20.	Quantitative Techniques	45
21.	Agricultural Economics and Marketing	46
22.	Rural Development	47-48

	<b>FACULTY OF SCIENCES</b>	
23.	Mathematics	49-50
24.	Statistics	51-53
25.	Chemistry	54-59
26.	Physics	60-62
27.	Home Science	63-65
28.	Cosmetology (Vocational)	66-67
29.	Clinical Nutrition and Dietetics (Vocational)	68-71
30.	Fashion Designing and Garments Construction (Vocational)	72-73
31.	Early Childhood Care and Education (Vocational)	74-75
32.	Food Science and Quality Control (Vocational)	76-77
	<b>FACULTY OF VISUAL ARTS &amp; PERFORMING ARTS</b>	
33.	Fine Arts	78-80
34.	History of Art	81-82
35.	Gemology and Jewellery Design (Vocational)	83-84
36.	Still Photography and Audio Production (Vocational)	85-87
37.	Applied Arts	88-89
38.	Sculpture	90-92
39.	Music (Vocal)	93-94
40.	Music (Instrumental)	95-96
41.	Indian Classical Dance	97-98
42.	Tabla	99-100

	<b>FACULTY OF ENGINEERING &amp; TECHNOLOGY</b>	
43.	Computer Science	101-103
44.	Information Technology (Vocational)	104-105
45.	Computer Maintenance (Vocational)	106
46.	Computer Applications (Vocational)	107-109
47.	Information Technology Specilization Software Development (Vocational)	110-111
48.	Automobile Maintenance (Vocational)	112-113
49.	Refrigeration & Air Conditioning (Vocational)	114-116
	<b>FACULTY OF HUMANITIES &amp; RELIGIOUS STUDIES</b>	
50.	Religious Studies (ਧਰਮ ਅਧਿਐਨ)	117-118
51.	Philosophy	119-123
	<b>FACULTY OF LIFE SCIENCES</b>	
52.	Zoology	124-142
53.	Botany	143-146
54.	Microbiology	147-148
55.	Industrial Microbiology (Vocational)	149-150
56.	Microbial & Food Technology	151-152
57.	Bioinformatics (Vocational)	153-154
58.	Biotechnology (Vocational)	155-158
	<b>FACULTY OF EDUCATION</b>	
59.	Education	159-160
60.	Human Rights	161-162

	<b>FACULTY OF AGRICULTURE &amp; FORESTRY</b>	
61.	Dairy Farming (Vocational)	163-164
	<b>FACULTY OF LANGUAGES</b>	
62.	Russian	165-167
63.	French	168-169
64.	Urdu	170-171
65.	Persian	172-173
66.	Sanskrit (Elective)	174-175
67.	Functional Sanskrit (Vocational)	176
68.	English (Compulsory)	177
69.	English (Elective)	178-179
70.	Functional English (Vocational)	180-182
71.	Punjabi (Compulsory) (ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ)	183
72.	Punjabi (Elective) (ਪੰਜਾਬੀ ਇਲੈਕਟਿਵ)	184
73.	Functional Punjabi (ਫੁੰਕਸ਼ਨਲ ਪੰਜਾਬੀ) (Vocational)	185
74.	ਮੁੱਢਲੀ ਪੰਜਾਬੀ (in lieu of Punjabi Compulsory)	186-187
75.	Hindi (Elective)	188-190
76.	Functional Hindi (Vocational)	191-192
77.	Hindi Patrakarita (Vocational)	193-197
	<b>FACULTY OF PHYSICAL EDUCATION</b>	
78.	Physical Education	198-200

**SEMESTER–VI**

**POLITICAL SCIENCE**  
**INTERNATIONAL POLITICS: THEORY AND PRACTICE**

**Time: 3 Hours**

**Max Marks: 100**

**Instructions for the Paper Setter:**

**Section–A:** The examiner shall set 10 short answer type questions covering entire syllabus and the candidates will have to attempt 8 questions of 2 marks each. Answer to each question shall be approximately of 50 words. The total weightage of this section shall be 16 marks.

**Section–B:** The examiner shall set 8 questions, by selecting 2 questions out of each unit. The candidate shall attempt any 6 questions in all by selecting atleast one question from each unit. Each question shall carry 14 marks. The total weightage of this section shall be 84 marks.

**Unit–I**

1. Meaning, Nature and Scope of International Politics.
2. Realist and Idealist Approaches to International Politics.

**Unit–II**

1. National Power: Its Elements
2. System of Balance of Power and Collective Security

**Unit–III**

1. Cold War and Post Cold War era of International Politics.
2. Emerging World Order and Multipolarity
3. Terrorism in global context: Its emergence and consequences

**Unit–IV**

1. Regional Organisations: SAARC and EU.
2. UNO: Principles, aims, objectives and its work.
3. New International Economic Order (NIEO).

**Recommended Books:**

1. Joshua S. Goldstein, *International Relations*, New Delhi, Pearson Education, 2006.
2. John Baylis and Steve Smith, *Globalization of World Politics*, New Delhi, Oxford University Press, 2005.
3. V.K. Malhotra, *International Relations*, New Delhi, Anmol Publishers Private Ltd., 2004.
4. R.P. Barston, *Modern Diplomacy*, New Delhi, Pearsons, 2006.

5. John Allphin Moore, Jr. and Jerry Pubantz, *The New United Nations, International Organization in the Twenty First Century*, New Delhi, Pearsons, 2008
6. J.C. Johari, *International Relations and Politics*, Sterling, 2012
7. V. K. Malhotr, *International Relations*, Anmol 2012
8. John Baylis and Sreve Smith, *The Globalizations of World Politics*, Oxford, 2005
9. Pen Ghosh, *International Relations*, PHI 2009
10. Scot. P. Handler, *International Politics*, Sage, 2013
11. Palmer Pertains, *International Relations*, AIIBS, 2005
12. H.J. Morgenthaou , *Politics Among Nations*, Kalyani,2004
13. Kanth Bajpai & Siddharth Mallavarapn, *International Relations in India : Bringing theory Back Home*, Orient longman, 2005
14. Leter Calvocoressis, *World Politics (1945-2000)*, Pearson, 2006

**SEMESTER–VI**  
**HISTORY**  
**History of the Punjab (1799-1966)**

**Time: 3 Hours**

**Max.Marks: 100**

**Note: The question paper will consist of two sections as follows:-**

**Section–A:** The examiner shall set 10 short answer type questions covering entire syllabus and the candidates will have to attempt 8 questions of 2 marks each. Answer to each question shall be approximately of 50 words. The total weightage of this section shall be 16 marks.

**Section–B:** The examiner shall set 8 questions, by selecting 2 questions out of each unit. The candidate shall attempt any 6 questions in all by selecting atleast one question from each unit. Each question shall carry 14 marks. The total weightage of this section shall be 84 marks.

**UNIT–I**

1. **The Establishment and Expansion of Ranjit Singh's Kingdom :** Political condition of the Punjab in the 1790s; Conquests of the Sikh principalities; Subjugation of the Satlej- Jamuna Divide and British intervention; Subjugation of the hill principalities; annexation of Afghan dependencies; Policy towards the defeated rulers; Extent of the kingdom in 1839.
2. **Administrative Organization of the Kingdom of Lahore:** Central, Provincial and local administration; Land revenue system. Jagirdari system, Dharmarth grants; Judicial administration; Military organization; state policy towards agriculture, Manufacture and trade.

**UNIT–II**

3. **Annexation and After :** First Anglo-Sikh War; Second Anglo-Sikh War; British administration 1845-1856; Agricultural development.
4. **Socio-Religious Reform Movements in the late– Nineteenth Century :** Christian evangelicals; the Arya Samaj; The Nirankaris and the Namdharis; the Singh Sabhas and the Ahmadiyas.

**UNIT–III**

5. **Early Nationalist Activities:** The Ghadar movement; Rowlatt Satyagrahs and the Jallianwala Bagh; Non-Cooperation Movement; Hindustan Socialist Republican Army and Naujawan Bharat Sabha; Civil Disobedience and Quit India Movement.
6. **Gurdwara Reforms and the Akalis :** Causes of the movement for reform; Central Sikh League; SGPC and the Shiromani Akali Dal ; Major Morchas ; Gurdwara legislation.

**UNIT–IV**

7. **Towards Partition:** Communal politics; Sikander–Jinnah Pact; Lahore Resolution of the Muslims League; Cabinet Mission Plan; Mountbatten Plan and Partition.
8. **The Punjab after Independence:** Reorganisation and rehabilitation: Demand for Punjabi speaking state; The reorganisation Act of 1966.

**Suggested Reading:**

1. Grewal, J.S., *The Sikhs of the Punjab*, CUP, Cambridge, 1990.
2. Kirpal Singh, *Partition of Punjab*, Punjabi University, Patiala, 1972.
3. Khushwant Singh, *A History of the Sikhs*, Vol. I & II Oxford Publication, 2004.
4. Kushwant Singh, *Ranjit Singh: Maharaja of the Punjab*, Chatar Singh Jeewan Singh Publication, Amritsar, 2012



**SEMESTER–VI**  
**JOURNALISM AND MASS COMMUNICATION (VOCATIONAL)**

**PUBLIC RELATIONS**  
**(THEORY)**

**Time: 3 Hours**

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

**Instructions for the Paper Setters:**

**Section–A** shall consists of 10 questions carrying 2 marks for each question. All questions will be compulsory. Each question will carry 2 marks with the total weightage of section being 20 marks.

**10x2=20**

**Section–B** shall consists of 10 questions. Candidates will be required to attempt any 8 questions. Each question will carry 5 marks. The total weightage of this section being 40 marks.

**8x5=40**

**Section-C** shall consists of 4 questions. Candidates will be required to attempt any 2 questions. Each question will carry 10 marks. The total weightage of this section being 20 marks.

**10x2=20**

PR-Definition, Concept and Role, Qualities of a PR person, Publics, PR in public & private sector  
Difference between PR & Advertising, Various PR Organisations, Organising a Press, Conference,  
Various tools of PR, Writing Press, Releases and reports, Need for PR; Objectives, Code of Ethics  
Crisis management  
Public Relations Society of India  
Event Management

**(PRACTICAL)**

**(20 Marks)**

1. PR report of an organisation/industry etc. organise an event of the institution
2. Preparing the PR report of an organization.
3. Organizing an event of institution.

**SEMESTER–VI**

**MASS COMMUNICATION & VIDEO PRODUCTION (VOCATIONAL)  
VIDEO ELECTRONIC FILM PRODUCTION**

**Time: 3 Hours**

**Max. Marks: 100**

**Theory Marks: 80**

**Practical Marks: 20**

**Instructions for the Paper Setters:**

**Section–A** shall consists of 10 questions carrying 2 marks for each question. All questions will be compulsory. Each question will carry 2 marks with the total weightage of section being 20 marks.

**10x2=20**

**Section–B** shall consists of 10 questions. Candidates will be required to attempt any 8 questions. Each question will carry 5 marks. The total weightage of this section being 40 marks.

**8x5=40**

**Section–C** shall consists of 4 questions. Candidates will be required to attempt any 2 questions. Each question will carry 10 marks. The total weightage of this section being 20 marks.

**10x2=20**

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

**Videoediting**

- Meaning
- Need
- Types (Online, Offline, Linear & Non-linear)
- Transitional Devices (Cut, Fade, Dissolve, Mix, Superimposition, Wipe & Montage)

**Special Effects**

- Audio Special Effects
- Video Special Effects
- Recording Special Effects

**Narration**

- Meaning and Role
- Writing & Recording Narration

**Sound Mixing & Editing**

- Basics
- Dubbing
- Studio Mixing
- Laying Tracks
- Pre & Post Production Mixing

**Studio & Location Sound Media Appreciation**

- Film Review
- Film Criticism
- Film Journalism
- Film distribution & Marketing

**PRACTICAL****Practical Marks: 20**

Making a minimum of five minute programme (any format) Reading a programme/films.

**Recommended Books**

1. Writing Scripts for TV Radio and Films: Wills, Edgar-Chicago, Holt and Rinehart, 1981 Lyver and Svainson.
2. Basics of Video Production: Des, Lyver and Svainson, Graham-Focal Press.

**Television Production: Gerald Millerson-Focal Press, 1999.****Note: Practicals to be conducted by external examiner.**

**SEMESTER–VI**  
**SOCIOLOGY**  
**SOCIAL RESEARCH AND SCIENTIFIC METHODS**

**Time: 3 Hours**

**Max. Marks: 100**

**Instructions for the Paper Setters:**

**Section–A:** The examiner shall set 10 short answer type questions covering entire syllabus and the candidates will have to attempt 8 questions of 2 marks each. Answer to each question shall be approximately of 50 words. The total weightage of this section shall be 16 marks.

**Section–B:** The examiner shall set 8 questions, by selecting 2 questions out of each unit. The candidate shall attempt any 6 questions in all by selecting atleast one question from each unit. Each question shall carry 14 marks. The total weightage of this section shall be 84 marks.

**UNIT–I**

- a) **Social Research:** Meaning and Functions.
- b) **Scientific Methods:** Nature, Steps and Types-Quantitative and Qualitative.

**UNIT–II**

- a) **Design of Social Research:** Meaning and Types: Exploratory, Descriptive, Experimental.
- b) Sampling and its types.

**UNIT–III**

- a) **Methods and Techniques of Data Collection:** Observation, Questionnaire, Interview Schedule and Case Study

**UNIT–IV**

- a) **Data Analysis:** Coding and Tabulation and Report Writing.

**Books Recommended:**

1. Bajpai, S.R.: *Methods of Social Survey & Research*, Kitab Ghar, Kanpur, 1976.
2. Bhandarkar, P.L and T.S Wilkinson. 2010, *Methodology and Techniques of Social Research*. Delhi: Himalaya Publishing House.
3. Cargen, Leonard. 2008, *Doing Social Research*. Jaipur: Rawat.
4. Goode, and Hatt: *Methods in Social Research*, McGraw Hill, Tokyo, 1952.
5. Ghosh, B.N.: *Scientific Method & Social Research*, Sterling Publications, New Delhi, 1985.
6. Jaspal Singh: *Introduction to Methods of Social Research*, Sterling, New Delhi, 1990.
7. Jayaram, N.: *Research Methodology: Methods and Techniques*, MacMillian, Madras, 1989.
8. Kalton, Graham: *Introduction to Survey Sampling*, Sage, New Delhi, 1983.
9. Kapila, S.: *Methods of Social Research*, New Academic Publishing Co., Mai Hiran Gate, Jalandhar, 1991.
10. May, Tim. 2009, *Social Research: Issues, Methods and Process*. Jaipur: Rawat.
11. Singh, Jaspal. 2011, *Instruments of Social Research*. Jaipur: Rawat.

**SEMESTER–VI****PSYCHOLOGY****ABNORMAL PSYCHOLOGY–II (THEORY)****Time: 3 Hours****Pass Marks: 35% of the subject  
(Theory and Practical Separately)****Max. Marks: 100****Theory Marks: 75****Practical Marks: 25****Instructions for the Paper Setters:**

The question paper will consist of three sections: A, B and C.

**Section–A:** It will consist of 10 very short answer type questions with answers to each question up to five lines in length. All questions will be compulsory. Each question will carry 1½ marks; total weightage of the section being 15 marks.

**Section–B:** It will consist of short answer type questions with answers to each question up to two pages in length. Six questions will be set by the examiner and four will be attempted by the candidates. Each question will carry 9 marks: total weightage of the section being 36 marks.

**Section–C:** It will consist of essay type questions with answer to each question up to five pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 12 marks, total weightage of the section being 24 marks. The questions are to be set to judge the candidates' basic understanding of the concepts.

**Note:**

- 1 The use of Non-Programmable calculators and Statistical Tables are allowed in the examination.
- 2 Only one numerical question is to be set either of nine marks (from Section-B) or of twelve marks (from Section-C).

(The questions are to be set to judge the candidates basic understanding to the concepts).

**Anxiety Based Disorders:** Symptoms, Etiology and Treatment of Obsessive Compulsive Disorder, Generalized Anxiety Disorder & Phobias. Classification of Somatoform Disorders–Symptoms & Etiology (Conversion Disorder). Dissociative disorders–Types, Symptoms & Etiology.

**Personality Disorders:** Clinical Features, Types and causal factors in Personality Disorders (Paranoid, Schizoid, Schizotypal, Histrionic, Narcissistic, Antisocial, Boderline, Avoidant, Dependent, Obsessive- Compulsive, Passive Aggressive, Self-Defeating & Sadistic.

**Antisocial Personality & Delinquency:** Clinical Picture, Characteristics, Causes, Treatment & Outcomes.

**Mood Disorders:** Types & Symptoms, Causes and treatment.

**Schizophrenia:** Symptoms, Causes Types and Treatment.

**Therapies:** Psychodynamic, Behavioural, Cognitive-Behaviour Therapy (Rational Emotive) & Humanistic therapy.

**Statistics:** Introduction to the concept of Hypothesis, One-tailed and two-tailed tests, Type I and Type II errors, Level of significance, degrees of freedom, Significance of Differences between means (Large sample, correlated and uncorrelated).

**Readings:**

1. Broota, K.D. (1989) Experimental Designs in Behavioural Research, Wiley Eastern Limited, New Delhi.
2. Carson, R.C. Butcher, J.N., and Mineka, S. (1997), Abnormal Psychology and Modern Life, Harper Collins, New York.
3. Davison, G.C. and Neale, J.M. (1998), Abnormal Psychology, John Wiley and Sons, New York.
4. Garrett. H.E. (1996), Statistics in Psychology and Education, Vakils, Feffar and Simons, New Delhi.
5. Sarason, I.G. and Sarason, B.R. (2002), Abnormal Psychology, Prentice Hall of India, New Delhi.
6. Singh, A., Asadharan Manovigyan, Punjabi University, Patiala.
7. Barlow, D.H. & Durand, V.M. (2007) Abnormal Psychology: An Integrative Approach. Thomson Wordsworth.

**SEMESTER–VI**

**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. Projective Techniques (T.A.T.).
2. Measurement of Anxiety.
3. Parenting Scale/Home Environment Scale.
4. EPQ.
5. Measurement of Depression.
6. Rosenweig's Pictures Frustration Test.

**SEMESTER–VI**

**WOMEN EMPOWERMENT  
CONTEMPORARY ISSUES OF WOMEN'S RIGHTS**

**Time: 3 Hrs.**

**Max. Marks: 100**

**Instructions for the Paper Setters:**

**Section–A:** The examiner shall set 10 short answer type questions covering entire syllabus and the candidates will have to attempt 8 questions of 2 marks each. Answer to each question shall be approximately of 50 words. The total weightage of this section shall be 16 marks.

**Section–B:** The examiner shall set 8 questions, by selecting 2 questions out of each unit. The candidate shall attempt any 6 questions in all by selecting atleast one question from each unit. Each question shall carry 14 marks. The total weightage of this section shall be 84 marks.

**UNIT–I**

**Legal Provisions against Female Foeticide**

1. Medical Termination of Pregnancy Act 1971
2. Prenatal Diagnostic and Technique (Regulation and Prevention of Misuse) Act 1994, 2001 and 2002.

**UNIT–II**

**Attrocities against women and legal provisions**

1. Indian Penal Code 1860: Rape (Sec. 375 IPC)
2. Types of Rape under IPC
3. Criminal Procedure Act 1976: FIR, Protection in case of arrest, detention of women in police lock up, trial in camera etc.

**UNIT–III**

**Feminism, Woman Rights and Challenges to Patriarchy in India**

1. Live in Relationship
2. Single Parenthood
3. Surrogacy and Adoption

**UNIT–IV**

**Women in globalized era**

1. Women and New Avenues: Role of Technology, Education and Science.
2. Women and New Employment opportunities:-  
Army, Space and Research
3. Women and Entrepreneurship, Media and ICT (Information and Communication Technology).



**SEMESTER–VI**

**DEFENCE AND STRATEGIC STUDIES**

**REGIONAL SECURITY AND COOPERATION  
(THEORY)**

**Time: 3 Hours**

**Max. Marks: 100**

**Theory Marks: 80**

**Practical Marks: 20**

**Instructions for the Paper Setters:**

**Section A:** The examiner shall set 10 short answer type questions from the entire syllabus and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

**Section–B:** The examiner shall set 8 questions from the entire syllabus–two from each Unit. The candidate shall attempt four questions, one from each Unit. Each question shall carry 13 marks. The total weightage of this Unit shall be 52 marks.

**Note:** Practicals are only meant for the regular students. For the private students the two papers shall be of **100 marks each**. For the private students, each question in Section B will be of 18 marks.

**Stencil outline maps are allowed**

**UNIT–I**

- i) **Theoretical dimensions of ‘Region’ in International Relations.**
- ii) **Regional Security: Regional Cooperation and Military Alliances: Conceptual Dimensions.**

**UNIT–II**

- i) **North Atlantic Treaty Organisation-(NATO): Aim, Organisation and Working.**
- ii) **Gulf Cooperation Council-( G.C.C.): Aim, Organisation and Working**

**UNIT–III**

- i) **Association of South-East Asian Nations-(ASEAN): Concept, Objectives, Features, Problems & Achievements.**
- ii) **Shanghai Cooperation Organisation-(S C O): Aim, Organisation and Working.**

#### UNIT–IV

**i) South Asian Association for Regional Cooperation- (SAARC):**

- a) Concept, Objectives, Features.
- b) Problems & Achievements.

**ii) BRICS: Organization, Objectives, Functions.**

**Suggested Readings:**

1. Buzan, Barry, (1987) : People Fear and State: New Delhi, Transasia Publications.
2. Buzan, Barry and Waever, Ole (eds.) (2003) : Regions and Powers: Cambridge.
3. Das, S.T. (1987) : National Security in Perspective: Delhi, Gian Publishing House.
4. Frankal, Joseph (1970) : National Interest: London, Macmillian.
5. Garnett, John (ed) (1970) : Theories of Peace and Security: Macmillan St. Martin's Press.
6. Kingar, Kamal (2008) : Rashtri Surakhya (in Punjabi), Punjab Heritage Foundation.
7. Kingar, Kamal (2011) : Khetri Surakhya ate Sehyog (in Punjabi), Unistar Pubishers.
8. Morgenthau, Hans J. (1969) : Politics Among Nations: Calcutta, Scientific Book Agency.
9. Palmer Perkins, Norman D. and C. (1968) : International Relations: Calcutta, Scientific Book Howard Agency
10. Chaudhury, Subrata Roy (1966) : Military Alliances and Neutrality in War and Peace: New Delhi, Orient Longman.
11. Singh, Nagendra (1974) : The Defence Mechanism and the Modern State: New Delhi, Asia Publishing House. SIPRI Year Book.

**SEMESTER–VI****DEFENCE AND STRATEGIC STUDIES****(PRACTICAL)**

**Time: 3 Hours**  
**Teaching Hours: 3 Periods a Week**  
**Written: 1 Hour**

**Total Marks: 20**  
**Written: 10**  
**Discussion: 05**  
**Record and Viva: 05**

**Note:** The paper for written test is to be given by the external examiner on the spot. Internal examiner has to assist him in the conduct of the examination.

**Group–A** **10 Marks**

1. Tactical, Formations–Section and Platoon and company.
2. Verbal orders
3. Patrol - Types and stages of patrolling

**Group–B: Group Discussion (Topics)** **05 Marks**

- (a) India's Internal Security problems.
- (b) Confidence bulding measures between India and Pakistan.
- (c) Environmental Security

**Group–C**

**Record and Viva–Voce** **05 Marks**

**SEMESTER–VI  
GEOGRAPHY**

**GEOGRAPHY OF INDIA  
(THEORY)**

**Time: 3 Hours**

**Max. Marks: 100  
Theory Marks: 70  
Practical Marks: 30**

**Objectives**

To foster comprehensive understanding of physical, human and economics resource base of India.

**Note: Instructions for the paper setters and candidates**

1. A compulsory question on map on India will be set covering the whole syllabus. This question will have 15 parts. The students will attempt any 10 parts in about 15-20 words each. Each part will carry 3 marks (total 30 marks). (Location and Explanation).
2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt four questions selecting one question from each unit. These will be in addition to compulsory question at serial number one.
3. **Examiner have to send a specimen copy of the outline map of India to be distributed to the student**
4. **Stencil/outline map and coloured pencils are allowed.**

**Course Content**

**UNIT–I**

India in the context of South Asia, Asia and the World. Relief, drainage, climate: Mechanism of Indian Monsoon, vegetation and soils.

**UNIT–II**

Mineral Resources: Iron-ore, manganese, mica, copper, gold; and power resources. Population: Numbers, distribution and density, growth, migration, urbanization, religious composition.

**UNIT–III**

Agriculture-Characteristics of Indian agriculture; land use pattern, irrigation, major crops (rice, wheat, sugarcane, cotton, jute, tea, groundnut), areas of surplus and deficit food production, problems of Indian agriculture.

**UNIT–IV**

Industries-Distribution and localization factors of major industries (iron and steel, cotton textiles, sugar, fertilizers, cement), role of the public sector in Indian economy. Transport: Rail, Road, airways and waterways; International Trade.

**Books Recommended:**

1. Deshpande, C.D.: India: A Regional Interpretation, Northern Book, Centre, New Delhi, **1992**.
2. Johnson, B.L.C.: South Asia, Heinemann, London, 1981.
3. Spate, O.H.K. & Learmonth, A.T.A.: India and Pakistan: A General and Regional Geography, Methuen, London, 1967.
4. Tirtha, Ranjit & Krishan, Gopal: Emerging India: A Geographical Introduction, Conoub, Ann Arber, Michigan (U.S.A.) 1992.
5. Malkit Singh: Geography of India, Rasmeet Prakashan, Jalandhar, **Reprint 2014**.
6. D.S. Mankoo: Geography of India, Kalyani Publishers, Jalandhar.
7. D.R. Khullar: Geography of India, New Academic Publishing Co., Jalandhar, **2011**.
8. C. B. Mamoria: Geography of India, Edition 2, Shiva Lal Agarwala, 1982.
9. Das, P. K. The Monsoons (India, the land and the people). New Delhi: National Book Trust, India 2015 (12<sup>th</sup> Edition).

## SEMESTER–VI

### GEOGRAPHY

#### MAP PROJECTIONS-II AND FIELD WORK (PRACTICAL)

**Max. Marks: 30**

**Written Paper of 3 Hours: 15 Marks**

**Practical Record (File): 08 Marks**

**Viva: 07 Marks**

#### Objectives:

- To Provide an analytical understanding of use of common map projections.
- To acquaint the students with the importance of field work as one of the methodologies in geography.
- To sensitize the students about pre-field work and post-field work i.e. data processing and analysis and writing of field work report.

#### UNIT–I

Construction, Properties and Limitations of following Map Projections:

Zenithals: Gnomonic, Stereographic, Orthographic, Equi-distant and Equal- Area (Polar cases only).

Introduction to Sinusoidal and Molleweide's Projections.

General principles of identification and choice of projections

#### UNIT–II

Role of field work in Geography.

Scale of study and field work methodology.

Methods of collecting Primary data (questionnaire, observation, interview and measurement) and Secondary data and parts of report.

Methods of field study of: a Farm, a Village, a Town and Physical Features of an area.

#### 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–voce examination.
4. In case the candidate has applied for the improvement, he/she should be required to make a fresh practical note book.
5. For practical classes, the number of students in one group shall not exceed fifteen.

**Books Recommended:**

1. Kellaway, George P.: *Map Projections*, Methue and Co., London.
2. Singh, Gopal: *Mapwork and Practical Geography*, Surjeet Book Depot, Delhi, 1993.
3. Singh, Malkiat: *Cartography*, Rasmeet Prakashan, Jalandhar, **Reprint 2014**.
4. Singh, L.R: *Practical Geography*, Chaitanya, Publishing House, Allahabad, 2006.
5. Jones, P.A.: *Field Work in Geography*, Longman, London, 1968.
6. Archer, J.E. & Dalton T.H.: *Field Work in Geography*, E.T. Bastford Ltd., London, 1968.
7. Singh, Gopal: *Map work and Practical Geography*, Surjeet Book Depot, Delhi, 1993.

**SEMESTER–VI**  
**PUBLIC ADMINISTRATION**

**DEVELOPMENT ADMINISTRATION**  
**(With Special Reference to Punjab)**

**Time: 3 Hours**

**Max. Marks: 100**

**Section–A:** The examiner shall set 10 short answer type questions covering entire syllabus and the candidates will have to attempt 8 questions of 2 marks each. Answer to each question shall be approximately of 50 words. The total weightage of this section shall be 16 marks.

**Section–B:** The examiner shall set 8 questions, by selecting 2 questions out of each unit. The candidate shall attempt any 6 questions in all by selecting atleast one question from each unit. Each question shall carry 14 marks. The total weightage of this section shall be 84 marks.

**UNIT–I**

**Introduction:**

Development Administration–Meaning, Scope and Significance. Main features of Development Administration in India. Features of Developed and Developing Countries. Mixed Economy Model & its Rationale and Significance.

**UNIT–II**

**Planning Machinery:**

Planning Commission and National Development Council. State Planning Commission. District and Block Level Planning Machinery. Formulation and Implementation of Development Programmes and Projects.

**UNIT–III**

**Public Sector and Development:**

Evolution and Expansion of Public Sector. Role of Public Sector. Management Boards. Forms and Features of Public Enterprises. Administrative Problems of Public Sector. Parliamentary and Executive control over Public Sector. New Economic Policy. Public and Private Partnership (PPP).

**UNIT–IV**

**Social Welfare and Development:**

Welfare of Scheduled Castes, Scheduled Tribes and other Backward Classes. Welfare Measures for Women and Children, Central Social Welfare Board; Composition and functions. Role of Voluntary Agencies in Social Welfare.

**Suggested Readings:**

1. Khera S.S., Government in Business, National Publishing House, New Delhi, 1977.
2. Kapoor S.S., Women and Welfare: A Study of Voluntary Agencies, Indus Publishing Company, New Delhi, 1995.
3. Puri K.K. and G.S. Brar, Development Administration, Bharat Parkashan, Jalandhar, 1993.
4. Sachdeva D.R., Social Welfare Administration in India, Kitab Mahal, Allahabad 2005.
5. Sapru R.K., Development Administration, Deep & Deep Publications, New Delhi, 1986.



## SEMESTER–VI

### OFFICE MANAGEMENT & SECRETERIAL PRACTICE (VOCATIONAL)

#### STENOGRAPHY IN ENGLISH (THEORY)

**Time: 3 Hours**

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

**Section–A:** The examiner will set 8 short questions from the entire syllabus. The candidate will have to attempt 6 questions out of 8 questions. Each question carrying 2 marks

**(6x2=12 Marks)**

**Section–B:** The examiner will set 8 long questions in four parts, 2 questions from each unit. The candidate will have to attempt 4 questions selecting at least one from each unit. Each question carrying 12 marks.

**(4x12=48Marks)**

#### UNIT–I

##### Typing

##### Manuscripts:

Proof correction-signs and their meaning, process of typing manuscripts, corrections of drafts.

##### Tabulations:

Definition and importance, part of tabulation, procedure for typing, tabulation, typing of book-notes, typing of balance sheet.

#### UNIT–II

##### Syllabification of Combination:

Rules for division of words at line ends, exceptions, formation of special sign with combination of characters.

##### Correspondence:

Typing with proper display  
Typing of business letters  
Typing of official letters

#### UNIT–III

##### Shorthand

Advanced phraseography, phraseology related to business, banking, insurance and administration. Special list of words.

#### UNIT–IV

Arrangement of materials on typewriter desk to facilitate transcription.  
Checking and proof reading transcription.

**SEMESTER–VI**

**OFFICE MANAGEMENT & SECRETERIAL PRACTICE (VOCATIONAL)**

**(PRACTICAL)**

**Marks: 40**

**Typing**

Manuscripts

Typewriting of Manuscripts (typed).

Typewriting manuscripts (handwritten).

Practice on carrying out corrections of drafts.

**Note:-** Computer facilities to do practical on computer.

**Tabulations**

Typewriting of tabulations, balance-sheet, invoices, foot notes.

**Syllabification and Combination:**

Typewriting exercises breaking of words at line ends, breaking of words with syllabification rules, typewriting of characters not existing on key boards.

**Correspondence:**

Typewriting unarranged, misspelt and wrongly-typed letters by observing the rules of display.

Typewriting of business, official letters.

**Shorthand**

1. Taking information from other documents in completion of short hand notes.
2. Office style dictation with amendments.
3. Submitting transcribed materials for signature.
4. Marking and filing of shorthand notices after completion of transcription.

**Recommended Drills:**

Throughout the course, there should be a constant emphasis on:

Fluency in shorthand, special care should be taken to expose students to variety of pronunciation.

Formation of well constructed shorthand outlines with the help of facility drills.

Auto mobilisation of grammalogues and phrases.

Daily practice in taking dictation starting at slow speed.

Practice in transcribing the long hand.

Dictation each day should be on practice material to increase the speed and on new matter to improve competence. it should be for timings of 1,3,5,7 and 10 minutes.

Probable work-sites where on the job training may be organised.

Government department offices.

Business/commercial organisation.

Industrial establishments.

Hospitals.

Educational institutions.

Railways, airlines and other transport undertakings.

Banking and insurance organization.

Parliament and state assembly.

Job work centres

This is a tentative list. Principal may be given the complete freedom to select any organistaion. However, while selecting the institution, care should be taken to select such institution who show willingness to accept the trainees and have the scope for providing variety of experiences in office practice and stenography area. Suggested Department/Section for On-the-Job Training' at the end of first year:

<b>Department/Section</b>	<b>No. of weeks</b>
1. Reception/inward and outward mail	1
2. Office establishment/filing/office equipment and production	1
3. Stenography work and typing with various executives and sections.	1
4. Sales, advertising and publicity, stores and	1
	4 weeks

**Suggested Department/Section for ‘On-the-Job Training’ at the end of second year.**

<b>Department/Section</b>	<b>No. of weeks</b>
1. Private Secretaries of various executives in different departments of the organisation	1
2. Office establishment/company secretary/share department	1
3. Accounts department/time office/reception	1
4. Typing pool/advertising /publicity	1
	4 Weeks

**Note:** The purpose of the ‘On-the-Job Training’ is to expose the students to the world of work and provide professional experience in real situation. The student shall have to maintain a diary and submit a detailed report of his activities which shall be certified by a responsible officer of the establishment. However, the teacher will also supervise the ‘On-the-Job training’ programme.

**Suggested Reading Materials:**

**(a) Short Hand**

<b>Title</b>	<b>Publisher:</b>
1. Pitman Shorthand Dictionary	A.H. Wheeler & Company
2. Pitman Shorthand Reading and Dictation Exercises Delhi	Pitman Shorthand School, New
3. Pitman Shorthand Reading and Dictation Exercises Delhi	Pitman Shorthand School, New
4. James W.M. Tylor A Commentary on Pitman Shorthand	
5. Shorthand made easy for beginners with key	O.P. Kuthiall
6. How to start shorthand Speed building	–do– & Edger Thrope
7. How to avoid confusion in outline in pitman shorthand	–do–
8. A Comprehensive List of Gramalongoos & Contractions	–O.P. Kuthiall

**(b) Type Writing:**

<b>Title</b>	<b>Publisher</b>
1. H.A. Mehta Typewriting Complete Course	Mehta Publishing Corporation, Basant Mahal. Wadala (East) Bombay - 4000037.
2. H.A. Mehta Typewriting Office Practice set	Mehta Publishing Corporation, Basant Mahal. Wadala (East) Bombay - 4000037.
3. H.A. Mehta Business Letter typing sets	Mehta Publishing Corporation, Basant Mahal. Wadala (East) Bombay - 4000037.
4. Typewriting by Md.Khan Dictation Exercises	Chittoor Publishing House, Chittoor, A.P.
5. Layouts and Forms in Typewriting	State Board of Technical Education, Hyderabad- 500022.

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–VI) (Session 2019-20)  
(Faculty of Economics & Business)

- |  |   |
|--|---|
| 6. 20th Century Typewriting                  | South-Western Publishing Company, Gincinati, Ohio, USA. |
| 7. Typewriting Drills for Speed and Accuracy | Gregg. Publishing Corporation, USA.                     |
| 8. Principle of Typewriting                  | O.P. Bhatia, S.S. Sangal.                               |
| 9. Typewriting Speed & Accuracy              | O.P. Kuthials & Thorpe                                  |
| 10. Typewriting Theory & Practicle           | R.C. Bhatia   |
| 11. Type writing speed & Accuracy-B-I.       | O.P. Kuthiall   |
| 12. -do- B-II                                | -do-  |

**(c) Office Practice**

- |  |   |
|--|---|
| 1. Office Practice Made Simple                     | By G. Whitehead, 1994.  |
| 2. Office Management and Commercial Correspondence | By Balraj Duggal, 2005.   |
| 3. Office Management and Secretarial Practice      | By V.P. Singh, Gyan Publishing House, Delhi.                        |
| 4. Business Correspondence and Office Practice     | By Nagamia and Bhal Thakkar Publication, Bombay                     |
| 5. Office Procedure and Secretarial Practices      | D.P. Katuria-Pitman Publications                                    |
| 6. Office Management                               | R.K.Sharma, Shashi K.Gupta, Sushil Nayar, Kalyani Publishers, 2003. |
| 7. Office Management                               | R.K. Chopra, Himalya Publishing House, 2000.                        |
| 8. Drafting & Office Procedure                     | Edgen Thrope.   |
| 9. Office Practice Made Simple                     | By Geoffrey Whitehead Published by WH Allen, 1974.                  |
| 10. Modern Office Management                       | By Jain J. Singh, PP, 2007, Deep & Deep Publications.               |
| 11. Office Management                              | By Manish Chopra, 2003.   |

**SEMESTER–VI**  
**TRAVEL & TOURISM**  
**EXPLORING TOURISM IN PUNJAB**

**Time: 3 Hrs.**

**Max. Marks: 100**

**Instructions for the Paper Setters:**

The Theory paper consists of two Parts A and B (short questions and long questions).

**Part–A:** The examiner will set 12 short questions, 3 questions from each section of 02 marks each.

The candidate will have to attempt 10 questions out of 12 questions.

**(10x02=20 Marks)**

**Part–B:** The examiner will set 8 long questions, 2 questions from each section of 20 marks each.

The candidate will have to attempt 4 questions out of 8 questions.

**(04x20=80 Marks)**

**UNIT–I**

**Chapter 1. Understanding Geography of Punjab:**

Topography, river system, climate, flora and fauna,

Historical impact on the life of the people

**Chapter 2. Gardens, Wetlands and Wildlife**

Bara Dari Patiala, Aam Khas Bagh (Sirhind), Harike

wetland, Chhatbir Zoological Park (Zirakpur), Kansal

Forset Reserve (Chandigarh)

**UNIT–II**

**Chapter 3. Ancient Medieval Landscapes of Punjab**

Ropar as a Centre of Harappan Civilisation

Stupa at Sanghol

Golden Temple, Amritsar

Medieval Serais and Imperial Highways

#### **Chapter 4. Modern Landscapes of Punjab**

Amritsar of Ranjit Singh: Ram Bagh and Gobindgarh Fort

Kapurthala Place

Sheesh Mahal, Patiala

Chandigarh as a Modern City

#### **UNIT–III**

#### **Chapter 5. Fairs and Festivals**

Sikh, Hindu and Muslim Religious Fairs-Diwali, Holla Mohalla (Anandpur Sahib), Dusshera, Lohri, Maghi Mela (Muktsar), Baisakhi at Damdama Sahib (Talwandi Sabo), Urs of Sheikh Mujaddid-Alif-Saani (Sirhind), Religious and Secular Centres-Golden Temple and Akal Takth (Amritsar), Anandpur Sahib (Takth Keshgarh Sahib), Durgiana Temple (Amritsar), Devi Talab (Jalandhar).

#### **Chapter 6. Museums and Memorials**

Archaeological Museums at Ropar, Government Museum and Art Gallery and City Museum (Chandigarh), Panaroma of Ranjit Singh (Amritsar), Art Gallery at Sheesh Mahal (Patiala), Hussainwala Memorial (Ferozpur), Retreat ceremony at Wagah (Amritsar), Desh Bhagat Yadgaar Hall (Jalandhar), Sikh Museum (Golden Temple, Amritsar), Science City (Kapurthala), Jalianwala Bagh Martyr's Memorial (Amritsar).

#### **UNIT–IV**

#### **Chapter 7. Handicrafts and Handlooms**

Phulkari, Bagh, Shawla, *durees* (floor covering), *Jutties* and Blankets

#### **Chapter 8. Performing Arts**

Dance: Bhangra, Gidda, Malwai Gidda, Jhummer, Sammi.

Music-Folk and Classical

Report Writing: Based on site visit/Event organized (Compulsory)

**Suggested Readings:**

1. Anand, Mulk Raj, ed. 1981. *Maharaja Ranjit Singh as the Patron of Arts* (Mumbai: Marg Publications)
2. Arshi, P.S. 1986. *Sikh Architecture* (Delhi: Intellectual Publishing House).
3. Aryan, K.C. 1977, *Punjab Murals* (Delhi: Rekha Prakashan).
4. Aryan, K.C. 1983, *Cultural Heritage of Punjab* (Delhi: Rekha Prakashan).
5. Daljeet, 2004. *The Sikh Heritage: A Search for Totality* (Delhi: Prakash Books).
6. Grewal, J.S. Social and cultural History of Pujab: Pre-historic, Ancient and Early Medieval (New Delhi: Manmohan)
7. Kang, Kanwarjit Singh, 1985. *Wall Paintings of Punjab and Haryana* (Delhi: Atma Ram & Sons).
8. Parihar, Subhash, 1985. *Mughal Monuments of Punjab and Haryana* (Delhi: Inter-India Publications).
9. Randhawa, M.S. ed., 1960, *Punjab Punjabi* (Patiala: Languages Department, Punjab).
10. Srivastava, S.P., 1991. *Art and Cultural Heritage of Patiala* (Delhi: Sundeep Prahashan).

**[www.punjabgovt.nic.in](http://www.punjabgovt.nic.in)**

[punjabtourism.gov.in](http://punjabtourism.gov.in)

[chandigarhtourism.gov.in](http://chandigarhtourism.gov.in)

**SEMESTER–VI****TOURISM AND HOTEL MANAGEMENT (VOCATIONAL)****Time: 3 Hours.****Max. Marks: 100****Theory Marks: 80****On the Job Training Marks: 20****Instructions for the Paper Setter:**

The following pattern of setting of question paper shall be observed. The question paper covering the entire course shall be divided into three sections as follows:

**Section–A:** This section will consist of 7 very short answer type questions with answers to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks; total weightage of the section being **14 marks**.

**Section–B:** This section will consist of short answer type questions with answers to each question upto two pages. Nine questions will be set by the examiner and the candidates will be expected to attempt six questions. Each question will carry six marks; total weightage of the section being **36 marks**.

**Section–C:** This section will consist of essay type questions with answer to each question upto 5 pages. Four questions will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 15 marks, total weightage of the section being **30 marks**.

**UNIT–I**

Interdisciplinary approach of tourism, infrastructure and superstructure for tourism-special emphasis on Indian hospitality industry

Tourism planning and development, demand and supply in tourism

**UNIT–II**

Tourism master plan

Destination development and destination marketing



### UNIT–III

Economic, Social and Political consideration of tourism  
International tourism organization:

- W.T.O.
- PATA
- IATA

### UNIT–IV

Tourism in 21st century,  
Impact of globalization and the era of information technology and other future trend in tourism industry  
Tourism pollution

**Students has to go for two months of specialized industrial training in a travel agency or in a hotel.**

#### **Specialized industrial training of 8 weeks**

The final year students are supposed to undertake practical training either in a hotel or a travel agency for at least two months. The project report will be submitted to college before examination and will be evaluated by external examiner. The internal assessment shall be based on periodical tests, written assignment and behaviour in the class.

#### **Reference Books:**

1. Romila Chawla: Tourism in 21st Century, Edition 2003, Sonali Publication.
2. Romila Chawla: Global Tourism, Edition 2003, Sonali Publication.
3. Dalip Makan: Strategies & Planning in Tourism Industry, edition 2003, Adhyayan Publisher.
4. R.L. Varshney: International Marketing Management, Edition 2005, Sultan Chand & Sons.
5. Romila: Tourism Research & Development, Edition 2004, Sonali Publication.
6. Romila Chawla: Tourism Marketing & Development, Edition 2004, Sonali Publication.
7. Romila Chawla: Economics of Tourism & Development, Edition 2004, Sonali Publication.
8. Gene Burte & Munish Thakur: Management Today Principal & Practice, Edition 1995, Tata McGraw Hill Publishing Co. Ltd.
9. Dr. C.B. Gupta & Dr. N. Rajan: Marketing Management, 7th edition 2002, Sultan Chand & Sons.

**SEMESTER–VI**

**TAX PROCEDURE AND PRACTICES**

**CUSTOMS ACT**

**Time: 3 Hours Max.**

**Max. Marks: 100**

**Note:** The following pattern of setting of question paper shall be observed: Instructions for the Paper Setters: The question paper covering the entire course shall be divided into three sections as follows:-

**Section–A:** This section will consist of 8 very short answer questions with answer to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 16 marks.

**Section–B:** This section will consist of short answer questions with answer to each question upto two pages. Nine questions will be set by the examiners and the candidates will be expected to attempted six question. Each question will carry eight marks, total weightage of the section being 48 marks.

**Section–C:** This section will consist of essay type questions with answers to each question upto 5 pages. Four questions, will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 18 marks; total weightage of the section being 36 marks.

**UNIT–I**

1. Role of Customs in International Trade.
2. Organisation of customs in India-Administrative and Operational Authorities.
3. Regulatory framework-An overview of customs Act, 1962; An overview of Customs Tariff Act, 1975.

### **Important terms and Definitions**

Assessable value baggage, bill of entry, bill of exports, suitable goods, duty, exporter, foreign going vessel, aircraft goods, import, import manifest, importer, prohibited goods, shopping bill, stores, bill, stores bill of landing, export manifest, FOB, FAS, CIF, GATT, Letter of Credit.

4. Kinds of duties-basic, Auxiliary, additional or countervailing; basis of levy-advalem, specified duties.
5. Prohibition of exportation and importation of goods and provisions regarding notified and specific goods.

### **UNIT–II**

6. Import of goods-free import and restricted import; Types of restricted import-prohibited goods, canalised goods, import against licensing; Types of import-import of cargo, import of personal baggage, import of stores;

Import of cargo- (a) import by land, sea or air route

(b) by post

**Clearance procedure** - For home consumption, for warehousing exbond clearance; Steps and documents to be prepared and filed, viz. bill of entry-

-Form No. 22 bill of entry for home consumption

-Form No. 23 bill of entry for warehouse.

-Form No. 24- Shipping bill for exbound clearance for home consumption and other accompanying document.

Clearance procedure for Import by post

Clearance of baggage-Import of baggage-meaning and kinds of baggage; rules and procedure of import thereof general passenger, tourist passenger and transfer of residence passenger; (Form No. 37-Form for baggage declaration).

7. Export of Goods–Free Export and Restricted Exports; Types of Restricted Exports-Prohibited Exports, Canalized Exports, Exports Against Licensing; Types of Exports–Export of cargo; Export of Baggage; Types of Exporters-Manufacturer Exporter and Merchant Exporter; Export of Cargo- (a) By Land, Sea and Air Route

(b) By Post

### UNIT–III

Clearance Procedure - Procedure and Filling & Filing of Relevant Documents

Form No.94- Shipping Bill for Export of Suitable Goods.

Form No.95- Shipping Bill for Export of Duty Free Goods.

Form No.96- Shipping Bill for Export of Duty Free Goods Exbond.

Form No.98- Bill for Export of Dutyable Goods.

Form No.99- Bill for Export of Duty Free Goods.

Form No.100-Bill for Export for Export of duty free goods ex-bond.

### UNIT–IV

Duty drawback - Meaning/Scheme, procedure and documentation thereof

Form No.93- Shipping Bill for Export of Goods under claim for duty Drawback.

Form No.97- Bill of Export for Export of Goods under claim for Duty Drawback.

### References:

1. Datey V.S. 2006 Taxmann's Indirect Taxes Law Practice Taxmann. Publications Pvt. Ltd., New Delhi.
2. Taxmann's Indirect Tax Laws as amended by Finance Act 2007. Taxmann Allied Service Pvt. Ltd., New Delhi, 2004.

**'ON THE JOB TRAINING' OF 4 WEEKS**

**Periods/week: T L**

**3 3**

1. 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.

**Suggested Readings:**

1. Monica Singhania and Vinod K Singhania (2017 ) Corporate Tax Planning & Business Tax Procedures with Case Studies; Taxman 21st Edition 2017, New delhi
2. V.S. Datey (2017) Customs Law Practice & Procedures 18th Edition 2017 Taxmann, New Delhi

3. B.N. Gururaj (2005) Guide To The Customs Act- Law Praticce And Procedures, Lexis Nexis;  
Second edition
4. Dr. Girish Ahuja & Dr. Ravi Gupta (2016) Practical Approach to DIRECT &  
INDIRECT TAXES, (Income Tax, Excise, Customs, CST, VAT & Service Tax), Bharat  
Law House Pvt. Ltd.

**SEMESTER–VI**

**ADVERTISING, SALES PROMOTION AND SALES MANAGEMENT  
(VOCATIONAL)**

**SALES PROMOTION AND PUBLIC RELATIONS**

**Time: 3 Hours**

**Marks: 100**

The following pattern of setting of question paper shall be observed.

**Instructions for the Paper Setters:**

**Section–A:** This section will consist of 8 very short answer questions with answer to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 16 marks.

**Section–B:** This section will consist of short answer questions with answer to each question upto two pages. Nine questions will be set by the examiners and the candidates will be expected to attempted six question. Each question will carry eight marks, total weightage of the section being 48 marks.

**Section–C:** This section will consist of essay type questions with answers to each question upto 5 pages. Four questions will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 18 marks; total weightage of the section being 36 marks.

**UNIT–I**

Nature and Importance of sales promotion its role in Marketing, Forms of sales promotion: Consumer oriented sales promotion, Trade - oriented sales promotion and sales force oriented sales promotion.

**UNIT–II**

Major tools of sales promotion: Samples point of purchase, displays and demonstrations. Exhibitions and Fashion shows, sales contests and games of chance and skill, lotteries, gifts, offers, premium and free goods. Princepacks, rebates, patronage, rewards.

Conventions, conference and tradeshows, specialities and novelties.

### UNIT–III

Developing and sales promotion programmes, pre-testing implementing, evaluating the results and making necessary modifications.

Public relations: Meaning, features, growing importance, role in marketing, similarities of publicity and public relations.

### UNIT–IV

Major tools of public relations: News, speeches, special events, handouts and leaflets, audio-visual, public service activities miscellaneous tools.

Ethical and local aspects of sales promotion and public relations.

#### **Suggested Readings:**

1. Kotler, P., K.L. Killer, A. Koshy & M. Jha, Marketing Management, 13th Ed., PHI, 2007.
2. Vaswar Das Gupta, Sales Management: In the Indian Perspective, PHI, 2004.



**SEMESTER–VI****COMMERCE****BUSINESS LAWS****Time: 3 Hours****Max. Marks: 100****Note: i) The candidates are allowed to use simple (Non-Scientific) Calculators.****ii) The question paper covering the entire course shall be divided into three sections as follows:-**

**Section–A:** It will consist of 10 very short-answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage of the section being **20 marks**.

**Section–B:** It will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry 6 marks; total weightage of the section being **48 marks**.

**Section–C:** It will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 16 marks; total weightage of the section being **32 marks**.

**UNIT–I**

Law of contract including contract of indemnity guarantee, bailment, pledge and agency

**UNIT–II**

Law of sales of goods

**UNIT–III**

Law of negotiable instruments.

**UNIT–IV**

The Punjab shops and commercial establishment act, 1959. Introduction to GST.

**Suggested Readings:**

1. Kuchhal M.C., "Business Law", Vikas Publications, 2007.
2. Gulshan S.S. and Kapoor G.K. "Business Law" New Age International Ltd. Publishers, 2007.
3. Batra V.K. and Kaira N.K., "Mercantile Law", Tata McGraw Hill Publishers, 2007.
4. Fiber Larry and Weigle Jerry, "Applied Business Law", Restan Publishing Company, 2007.
5. Ashwathappa and Ready, "Business Law", Himalaya, Publishing House, 2007.
6. Bulachandani K.R. "Business Law", Himalaya Publishing House, 2007.
7. Gupta S.S., GST-How to meet your obligations 2017. Taxman, Publications (P) Ltd.

**SEMESTER–VI**

**TOURISM AND TRAVEL MANAGEMENT (VOCATIONAL)**

**INFORMATION, COMMUNICATION & AUTOMATION**

**Time: 3 Hours**

**Max. Marks: 100**

**Theory Marks: 50**

**Viva: 50**

Viva-Voce will be conducted by the external examiner which will be based on ‘On the Job-Training’ undertaken by student and report prepared during ‘On the Job-Training’.

**Instructions for the Paper Setters:**

**Section–A:** It will consist of 10 questions from the entire syllabus of the paper with answer to each question should up to 50 words. Students will be required to attempt any 5 questions. Each question will carry 2 marks. This section will be of 10 marks

**Section–B:** It will consist of 8 essay type questions, 4 from each unit with answer to each question should up to 5 pages. Students will be required to attempt any 4 questions. Each question will carry 10 marks. This section will be of 40 marks.

**Part–I**

- Consumer expectation and services & legislation.
- National tourism civil aviation & policy.
- Information Technology.
- Computerised Reservation System:-Introduction to CRS, Components of CRS, Need of CRS

### **Part–II**

- Market Research: –Concept, Significance, Market Segmentation.
- Data collection
- Consortiums of airline hotel & wholesalers
- Communication:-Meaning, Importance, Types of Communication, Barriers to effective communication.

#### **Suggested Readings:**

1. National Development Council Report.
2. National Action Plan, 1992.
3. Reports of World Tourism Organisation.
4. Report Workshop on Tourism Legislation - August 10-11, 1987 IITTM, New Delhi.
5. Report Workshop on Tourism Legislation - February 23, IITTM, New Delhi.

**SEMESTER–VI  
ECONOMICS**

**QUANTITATIVE METHODS FOR ECONOMISTS**

**Time: 3 Hours**

**Max. Marks: 100**

**Instructions for the Paper-Setters/Examiners:**

- (i) First question consisting of 10 short answer type based upon the entire syllabus (each carrying 2 marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

**UNIT–I**

Sets, Relations and functions, Limits and continuity (Basic concepts), Derivative of simple functions only (excluding log & exponential functions). Maxima/Minima for single variable functions. Introduction to matrices - definition, properties & inverse.

**UNIT–II**

Measures of central tendency — Mean, Mode, Median and Geometric Mean; Measures of dispersion.

**UNIT–III**

Concepts and Measure of skewness and kurtosis: Boyle's & Karl Pearson's measures. Simple correlation & regression (ungrouped & grouped data).

**UNIT–IV**

**Interpolation:** Concepts and Methods — Binomial expansion, Newton and Lagrange's Method (with emphasis on missing values only). Price Index Numbers—Weighted and Unweighted Index Numbers, various formulae and consistency tests.

**Suggested Readings:**

1. Archibald, G. & R.G. Lipsey (1973); Introduction to a Mathematical Treatment of Economics, 2nd Ed. Weidenfeld and Nicholson, London.
2. Yamane, Taro (1968); Mathematics for Economists, 2nd ed. Prentice Hall, Englewood Cliffs, New Jersey.
3. Croxton, F.E. Cowden D.J. and Klein, S. (1973); Applied General Statistics, 3rd. Ed., Prentice Hall of India, New Delhi.
4. Fox, I.A. (1972); Intermediate Economic Statistics, Wiley Eastern Pvt. Ltd., New Delhi.
5. Nagar, A.L. and Das, R.K. (1976); Basic Statistics, Oxford University Press, Bombay.
6. Baumol (1973); Economic Theory and Operations Analysis, Prentice Hall of India Pvt. Ltd., New Delhi.

**SEMESTER–VI****INDUSTRIAL ECONOMICS–VI****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper-Setters/Examiners:**

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

**UNIT–I**

**Industrial Finance:** Meaning, Scope, Objectives and Functions; Sources and Methods of Industrial Finance: Internal and External Sources; Short and Long Term Finance.

**UNIT–II**

**Financial Institutions-**Commercial Banks; Finance Corporation and Industrial Development Banks.

**UNIT–III**

**Capital Budgeting and Structure:** Finance of Working Capital; Evaluation of Project Investment. Cost of Capital and its Effect on Gearing and Company Valuation. Financial Leverage and Capital Gearing.

**UNIT–IV**

Bank and Non-Bank Finance; Venture Capital; Foreign Investment and Stock Market Prices and Operations and Role of SEBI.

**Recommended Texts:**

1. Pandey, I.M.: Capital Structure and Cost of Capital.
2. Pandey, I.M.: Financial Management, Vikas Publishing House, New Delhi, 2000.
3. Hay, D.A. and Morris D.J.: Industrial Economics: Theory and Evidence, Oxford University Press, London, 1979.
4. Khan, M.Y.: Industrial Finance, Tata Mcgraw Hill, New Delhi, 1980.
5. Gupta, L.C.: The Changing Structure of Industrial Finance in India, Oxford, Clarendon, 1969.
6. Dasgupta, P.S. et.al. : Guidelines for Project Evaluation.

**SEMESTER–VI****QUANTITATIVE TECHNIQUES–VI****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper-Setters/Examiners:**

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks)) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

**SECTION–A**

Definition, Scope and Nature of Econometrics. Simple Linear Regression Model (OLS method) with applications.

**SECTION–B**

General Linear Regression Model, assumptions, properties (BLUE).

Gauss-Markov Theorem, Concepts of  $R^2$  and  $\bar{R}^2$ , Test of Significance (Stress on Numericals).

**SECTION–C**

Econometric Problems of Heteroscedasticity and Multicollinearity in the Regression Analysis: Sources, Consequences, Tests and Remedial Measures. Specification Bias.

**SECTION–D**

Problem of Auto-Correlation in the Regression Analysis: Sources, Consequences, Tests and Remedial Measures. Distributed Lag Models and Auto-Regressive Models (Introductory). Dummy Variable Technique and its Uses.

**Books Recommended:**

1. Koutoyannis, A.: Theory of Econometrics.
2. Gujarati: Basic Economics (2003).
3. Mehta and Madnani: Basic Economics.
4. Stock and Watson: Introduction to Econometrics (2004).
5. Dougherty C.: Introduction to Econometrics (2007).

**SEMESTER–VI****AGRICULTURE ECONOMICS & MARKETING****AGRICULTURAL MARKETING–III****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper-Setters/Examiners:**

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (i) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

**UNIT–I**

Marketing Management—Nature, Scope and Function of Marketing Management.

Marketing Research—Meaning, Scope, Importance and Techniques.

**UNIT–II**

Marketing of Major Agriculture Commodities, Foodgrains, Cash Crops, Milk and Poultry.

Marketing of Agricultural Input—Fertilizers, Pesticides and Agricultural Machinery.

**UNIT–III**

Concept of Physical Distribution—Role of Public distribution in India, Performance and Evaluation of public distribution system in India.

**UNIT–IV**

Agreement on Agriculture under WTO, Pre and Post WTO Agricultural Trade, Sanitary and Phyto-Sanitary Measures on Agriculture, Impact of WTO on Indian Agriculture.

**Recommended Readings:**

1. Philips, Kotler, Marketing Management Analysis Planning and Control.
2. Gandhi, J.C., Marketing and Managerial Introduction.
3. Neelamegham, S. Marketing Managerial and the Indian Economy.
4. Bansal, P.C., Agricultural Problems in India.
5. Singh & Sadhu Agri. Problem in India, Himalayan Publishing House, New Delhi, 1986.

**SEMESTER–VI****RURAL DEVELOPMENT–VI  
(THEORY)****Time: 3 Hours****Max. Marks: 100  
Theory Marks: 80  
Practical Marks: 20****Instructions for the Paper-Setters/Examiners:**

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (15 marks each).

**UNIT–I**

**Dairy, Poultry & Piggery:** Breed and Breeding Methods, Management and Care of Animals, Sheds, Feeding, Health, Important Diseases, Marketing of Products, Economics of Dairy, Poultry and Piggery.

**UNIT–II**

**Fishery:** Scope of Fishery, Species and Culturing of Fish, Management, Feeding, Diseases, Marketing, Economics of Fishery.

**UNIT–III**

**Bee Keeping:** Scope of Bee-Keeping, Equipment needed, Species, Diseases, Economics of Bee Keeping.

**UNIT–IV**

**Time and Energy Management:** Importance, Leisure, Time and its use, Energy Management in Households and Agriculture.

**Food & Nutrition:** Basic Food Groups, Essential Constituents, Vitamins and Minerals, Balanced diet.



**SEMESTER–VI**

**RURAL DEVELOPMENT–VI**

**(PRACTICAL)**

**Max. Marks: 20**

**Note:** Six periods per week will be devoted to both theory and practicals. Candidates are expected to have practical knowledge about dairy, poultry, piggery, bee keeping, time and energy management, food and nutrition etc.

**Suggested Readings:**

1. D.S. Dev Poultry Farming.
2. Punjab Agriculture Books on Dairying, Fishery and University, Ludhiana Bee Keeping.

**SEMESTER–VI  
MATHEMATICS**

**PAPER–I: LINEAR ALGEBRA**

**Time: 3 Hours**

**Marks: 50**

**Instructions for the Paper Setters:**

1. Syllabus of this paper is split into two Parts: Section–A and Section–B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.

**Section–A**

Definition of groups, rings and fields with examples. Definition of a vector space, subspaces with examples. Direct sum of subspaces. Linear span, Linear dependence, Linear independence of vectors. Linear combination of vectors, Basis of a vector space, Finitely generated vector spaces. Existence theorem for basis. Invariance of the number of elements of the basis set. Dimension of sum of two subspaces. Quotient space and its dimension.

**Section–B**

Linear transformation. Algebra of linear transformation. Rank- Nullity theorem, Isomorphism and Isomorphic spaces, Matrix of a linear transformation. Changes of basis, Linear operator.

**Books Recommended:**

1. K.Hoffman & R. Kunze: Linear Algebra, 2nd Edition, Prentice Hall, New Jersey, 1971.
2. V. Krishnamurthy, V. P. Mainra and J.L. Arora: An Introduction to Linear Algebra, East West Press, 1976.
3. Shanti Narayan & P.K. Mittal: A Text Book of Matrices, 10th Edition (2002), S.Chand & Co.
4. Surjit Singh: Linear Algebra, 1997.

**SEMESTER–VI  
MATHEMATICS**

**PAPER–II: NUMERICAL ANALYSIS**

**Time: 3 Hours**

**Marks: 50**

**Instructions for the Paper Setters:**

1. Syllabus of this paper is split into two Parts: Section–A and Section–B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.
4. The non-programmable scientific calculator is allowed in the examinations.

**Section–A**

Error generation, propagation, error estimation and error bounds, Solution of non-linear equations, Bisection method, Iteration method, Newton's Method, Generalized Newton's Method, Method of false position, Muller's method, Rate of convergence of these methods.

Solution of linear system of equation; Direct method, Gauss elimination variant (Gauss Jordan and Crout reduction), Triangular Method, Iterative Method, Jacobi's Method, Gauss Seidel Method. Finite Differences: Forward, Backward, Central, Divided differences, shift operator, relationship between the operators and detection of errors by use of difference operator.

**Section–B**

Interpolation with divided difference, Newton's formula, Lagrangian Method, Finite difference interpolation, Gauss formula, Stirling formula, Bessel's formula, Error Estimation Extrapolation. Numerical differentiation, Method based on interpolation. Numerical Integration, Trapezoidal rule, Simpson's rule, Weddle rule, Romberg Integration, Gaussian integration method, Gaussian legendre integration. Double numerical integration.

Numerical solution of ordinary differential equations, Initial value problem, Taylor's method, Euler's methods, Picard's method, Milne's Method, Runge-Kutta Method. Predictor- Corrector's Method.

**Books Recommended:**

1. S.S. Sastry: Introductory Methods of Numerical Analysis, 2003 (3rd Edition), Prentice Hall of India.
2. A. Maritava Gupta and Subash Ch. Bose: Introduction to Numerical Analysis.

**SEMESTER–VI  
STATISTICS**

**PAPER–I: ECONOMIC STATISTICS**

**Time: 3 Hours**

**Marks: 35**

**Instructions for the Paper Setters:**

1. Question paper will consist of two sections, Section A and Section B. Each section will consist of five questions, carrying equal marks each, set from corresponding section of the syllabus.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time would be six periods per week for this paper.
4. The candidates are allowed to use Non–Programmable calculators.

**Section–A**

Introduction to index number, problems in the construction of index numbers, Laspyeres, Passche's, Drobish-Bowley, Walsh Marshal-Edgeworth and Fisher's formulae for index numbers, errors in index numbers, various tests for the criterion of a good index numbers, chain index number, cost of living index numbers, uses of index numbers.

**Section–B**

Introduction of time series, the four components of a time series, measurement of secular trend by graphic method, method of semi averages, the method of moving averages and fitting of mathematical curves, measurement of seasonal fluctuations by method of simple averages, ratio to moving average, ratio to trend and link relative methods, measurement of cyclical fluctuations (excluding periodogram analysis).

**Book Recommended:**

1. Goon, A.M., Gupta, M.K. and Dasgupta, B., Fundamentals of Statistics, Vol.-II, World Press, 2005.
2. Medhi, J., Statistical Methods. New Age International Publishers, 2000.
3. Nagar, A.L. and Das, R.K., Basic Statistics, Oxford University Press, 2005.
4. Gupta, S.C. and Kapoor, V.K., Applied Statistics, Sultan Chand and Company, 2007.

**SEMESTER–VI  
STATISTICS**

**PAPER–II: VITAL STATISTICS AND INDUSTRIAL STATISTICS**

**Time: 3 Hours**

**Marks: 35**

**Instructions for the Paper Setters:**

1. Question paper will consist of two sections, Section A and Section B. Each section will consist of five questions, carrying equal marks each, set from corresponding section of the syllabus.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time would be six periods per week for this paper.
4. The candidates are allowed to use Non–Programmable calculators.

**Section–A**

Vital statistics, data for vital statistics, rate of vital events, measurement of mortality, crude, specific and standardized death rates, cause of death, infant Mortality. Fertility rates. Measurement of fertility, crude birth rate, general fertility rate, age specific fertility rate, general and total fertility rates. Measurement of population growth, growth reproduction rate and net reproduction rate.

**Section–B**

Statistical quality control: chance and assignable causes, process and product control, the techniques of control charts for process control, three sigma limits and specification limits. Schewharts Control charts for mean, S.D. and Range, Control Chart for number of defective and fraction defective, control charts for number of defects. Advantages of process control, sampling inspection by attributes for product control, the concept of producer's and consumer's risks, AQL, LTPD, AOQL, ASN, ATI and OC functions and curves, single and double sampling plans and their properties.

**Book Recommended:**

1. Goon, A.M., Gupta, M.K. and Dasgupta, B., Fundamentals of Statistics, Vol.-II, World Press, 2005.
2. Medhi, J., Statistical Methods. New Age International Publishers, 2000.
3. Nagar, A.L. and Das, R.K., Basic Statistics, Oxford University Press, 2005.
4. Gupta, S.C. and Kapoor, V.K., Applied Statistics, Sultan Chand and Company, 2007.

**SEMESTER–VI  
STATISTICS**

**PAPER-III: - Practical based on PAPER–I: ECONOMIC STATISTICS and  
PAPER–II: VITAL STATISTICS AND INDUSTRIAL STATISTICS**

**Time: 2 Hours**

**Marks: 30**

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

**List of practical exercises**

1. Exercises on construction of index numbers: Laspyere's, Passche's, Drobish-Bowley's, Walsh Marshal-Edgworth's, Fisher's
2. Exercises on measurements of secular trend using graphic method, semi averages method, curve fitting method and moving average method
3. Exercises on fitting of various mathematical curves using least square principle
4. Exercises on measurements of seasonal fluctuations using simple average method, ratio to trend method, ratio to moving averages, and link relative method
5. Exercises on measurements of mortality: crude death rate, specific death rate, standardized death rate
6. Exercises on measurements of fertility: crude birth rate, general fertility rate, specific fertility rate, total fertility rate
7. Exercises on measurements of population growth: Crude rate, gross reproduction rate, net reproduction rate
8. Exercises on construction of three sigma limits of control charts for mean, standard deviation, and range
9. Exercises on construction of three sigma limits of control charts for number of defective, fraction defective, and number of defects.

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:

1. Practical Note book: 05
2. Viva – voce: 10
3. Exercises: 15

**SEMESTER-VI**

**CHEMISTRY (ORGANIC CHEMISTRY- A)  
(THEORY)**

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

**Marks: 35**

**The question paper shall consist of two parts as detailed below:-**

**Part-A :- (Compulsory)**

It shall consist of 8 very short answer type questions (Q. Nos. 1 to 8) from the entire syllabus and the maximum length of each question may not exceed  $1/3^{\text{rd}}$  the page. Each question will be carrying one mark.  
**8 X 1 = 8 Marks**

**Part-B :-**

It shall consist of three sections (Section 1, II & III). It shall consist of 9 questions (Q. Nos. 9 to 17) from the entire syllabus. Each question will consist of 3 questions from each Unit of syllabus. The maximum length of each question may not exceed 5 pages. The candidate will attempt two questions from each section. Each question will be carrying  $4\frac{1}{2}$  marks.

**6 X  $4\frac{1}{2}$  = 27 Marks**

**Section-I**

**1. Spectroscopy**

**(15 hrs.)**

Nuclear Magnetic Resonance (NMR) spectroscopy.  
Proton Magnetic Resonance ( $^1\text{H}$  NMR) spectroscopy,  
nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants, areas of signals, interpretation of PMR spectra of simple organic molecules such as ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromoethane, ethyl acetate, toluene and acetophenone.

**2. Electromagnetic Spectrum: Absorption Spectroscopy**

Ultraviolet (U.V.) absorption spectroscopy introduction- (Beer-Lambert law), molar absorptivity, analysis of UV spectra, types of electronic transitions effect of conjugation. Concept of chromophores and auxochrome, Bathochrome, hypsochrome, hyperchrome, hypochromic shifts-UV spectra of conjugated compounds, Infrared (IR) Absorption spectroscopy-introduction, Hooke's law, Selection rules, intensity and IR bands, measurement of IR spectrum time characteristic absorption of various fundamental band interpretation of IR spectra of simple organic compounds.

**Section-II**

**3. Problems based on spectroscopy**

**(4 Hrs.)**

Problems pertaining to the structure elucidation of simple organic compounds using UV, IR and PMR spectroscopic techniques.

**4. Organosulphur Compounds**

**(3 Hrs.)**

Nomenclature, structural features, Methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine.

**5. Synthetic Polymers (4 Hrs.)**

Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers.

Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes. Natural and synthetic rubbers.

**6. Organic Synthesis via Enolates (4 Hrs.)**

Acidity of  $\alpha$ -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate.

Alkylation of 1,3-dithianes. Alkylation and acylation of enamines.

**Section–III**

**7. Carbohydrates (8 Hrs.)**

Classification and nomenclature. Monosaccharides, mechanism of osazone formation, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses. Configuration of monosaccharides. Erythro and threo diastereomers. Conversion of glucose into mannose. Formation of glycosides, ethers and esters. Determination of ring size of monosaccharides. Cyclic structure of D(+)-glucose. Mechanism of mutarotation.

**Structures of ribose and deoxyribose**

An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

**8. Amino Acids, Peptides, Proteins and Nucleic Acids (7 Hrs.)**

Classification, structure and stereochemistry of amino acids. Acid-base behaviour, isoelectric point and electrophoresis. Preparation and reactions of  $\alpha$ -amino acids.

Structure and nomenclature of peptides and proteins. Classification of proteins. Peptide structure determination, end group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid-phase peptide synthesis. Structures of peptides and proteins. Levels of protein structure. Protein denaturation/renaturation.

Nucleic acids : Introduction. Constituents of nucleic acids. Ribonucleosides and ribonucleotides. The double helical structure of DNA.



**Books Suggested :**

1. Spectrometric Identification of Organic Compounds by Robert M. Silverstein, Francis X. Webster, David J. Kiemle, David L. Bryce ; **Publisher:** Wiley, 1981
2. Morrison, R.T., Boyd, R.N., Organic Chemistry; 6th edition, Pubs: Prentice-Hall, 1992.
3. Wade Jr., L.G., Singh, M.S., Organic Chemistry; 6th edition, Pubs: Pearson Education, 2008.
4. Mukherji, S.M., Singh, S.P., Kapoor, R.P., Organic Chemistry; Pubs: New Age International, 1985, Vols. I, II, III.
5. Carey, F.A., Organic Chemistry; 4th edition, Pubs: McGraw-Hill, 2000.
6. Solomons, T.W., Fundamentals of Organic Chemistry; 5th edition, Pubs: John Wiley & Sons, 1997.
7. Streitwieser, A., Clayton, Jr., Heathcock, H., Introduction to Organic Chemistry; 3rd edition, Pubs: Macmillan Publishing Company, 1989.

**SEMESTER-VI**  
**CHEMISTRY (PHYSICAL CHEMISTRY-B)**  
**(THEORY)**

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

**Marks: 35**

**The question paper shall consist of two parts as detailed below:-**

**Part-A :- (Compulsory)**

It shall consist of 8 very short answer type questions (Q. Nos. 1 to 8) from the entire syllabus and the maximum length of each question may not exceed  $1/3^{\text{rd}}$  the page. Each question will be carrying one mark.  
**8 X 1 = 8 Marks**

**Part-B :-**

It shall consist of three sections (Section 1, II & III). It shall consist of 9 questions (Q. Nos. 9 to 17) from the entire syllabus. Each question will consist of 3 questions from each Unit of syllabus. The maximum length of each question may not exceed 5 pages. The candidate will attempt two questions from each section. Each question will be carrying  $4\frac{1}{2}$  marks.

**6 X  $4\frac{1}{2}$  = 27 Marks**

**Section-I**

**1. Quantum Mechanics-I**

**(15 hrs.)**

Black-body radiation, Planck's radiation law, Photoelectric effect, heat capacity of solids, Bohr's model of hydrogen atom (no derivation) and its defects, Compton effect.

de Broglie hypothesis, Heisenberg's uncertainty principle, Sinusoidal wave equation, Hamiltonian operator, Schrodinger wave equation and its importance, physical interpretation of the wave function, postulates of quantum mechanics, particle in a one dimensional box, quantization of energy levels, extension to two and three dimensional boxes, degeneracy.

**Section-II**

**2. Quantum Mechanics-II**

**(15 hrs.)**

Simple harmonic oscillator model of vibrational motion, setting up Schrodinger equation and discussion of solution and wave functions. Rigid rotator model of rotation of diatomic molecules transformation to spherical polar coordinates spherical harmonics and their discussion. Qualitative investigation H-atom, setting up Schrodinger equation, radial and angular part, radial distribution functions of 1s, 2s, 2p, 3s, 3p and 3d.

### Section–III

#### 3. Solid State

(8 Hrs.)

Definition of space lattice and unit cell, Law of crystallography- (i) Law of constancy of interfacial angles, (ii) Law of rationality of indices, (iii) Symmetry elements in crystals.

X-ray diffraction by crystals. Derivation of Bragg's Law in Reciprocal space. Determination of crystal structure of NaCl, KCl by use of Powder method; Laue's method.

#### 4. Photochemistry

(7 Hrs.)

Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grothus–Drapper law, Stark–Einstein law, Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non–radiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions–energy transfer processes (simple examples).

#### 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 Company Inc., 1996.
4. Rao, C.N.R., University General Chemistry; Pubs: Macmillan of 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; I edition, Pubs: John Wiley & Sons Inc., 1992.
7. Dogra, S.K., Dogra, S., Physical Chemistry Through Problems, Pubs: Wiley Eastern Ltd., 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.
11. Banwell, C.N., McCash, E.M., Fundamentals of Molecular Spectroscopy; 4th edition, Pubs: Tata McGraw Hill Publishing Co. Ltd., 1999.
12. Atkins, P. Friedman, R., Molecular Quantum Mechanics; 4th edition Pubs: Oxford University Press, 2007.
13. Levine, I.N., Quantum Chemistry; 5th edition, Pubs: Prentice Hall International Inc., 2000.
14. Inorganic Chemistry, W.W. Porterfield Addison-Wesley.
15. Inorganic Chemistry, A.G. Sharpe, ELBS.

**SEMESTER–VI  
CHEMISTRY  
(PRACTICAL)**

**Duration 3½ Hrs.**

**6 Period/week  
M. Marks: 30**

**(I) Organic Chemistry Laboratory Techniques**

**(a) Column Chromatography**

- Separation of o & p nitrophenol
- Separation of Leaf pigments from Spinnach leaves
- Separation of o & p nitro aniline
- Separation of dyes.

**(b) Synthesis of Organic Compounds**

- Preparation of p-nitroacetanilide
- Preparation of p-bromoacetanilide
- Green Chemistry Experiment: Preparation of benzoic acid from Benzyl-using green approach.
- Preparation of Methyl Orange, Methyl Red
- Preparation of benzoic acid from benzyl-using green approach

**Practical Examination**

1) Column Chromatography	07
2) Organic Synthesis	16
3) Viva-Voce	04
4) Note Book	03

**Books suggested:**

1. Experimental Organic Chemistry, Vol. I & II, P.R. Singh, D.S. Gupta and K.S. Bajpai, Tata McGraw Hill.
2. Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern.
3. Vogel's Textbook of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchell, ELBS.
4. Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.

**SEMESTER–VI****PHYSICS****PAPER–A: RADIATION AND PARTICLE PHYSICS  
(THEORY)****Time: 3 Hours****Marks: 35****Total Teaching Hrs: 45(3h/week)****Pass Marks: 35%****Instructions for the Paper Setters:**

There will be five sections. Section A will consist of seven short answer type questions covering the whole syllabus and is compulsory. Sections B, C, D and E will consist of two questions each. The candidates are required to attempt one from each section. All questions carry equal marks.

**UNIT-II**

**Interaction of Radiation and Charged Particles With Matter:** Energy loss of electrons and positrons, Positrons annihilation in condensed media, Stopping power and range of heavier charged, derivation of Bethe-Bloch formula, interaction of gamma rays with matter.

**UNIT-II**

**Nuclear Radiation Detection:** Gas-filled detectors, proportional and Geiger-Mueller counters, Scintillation detectors, semiconductor detectors, Cherenkov effect, solid state nuclear track detectors, bubble chambers, nuclear emulsions.

**UNIT-III**

**Accelerators:** Accelerators, linear accelerators, cyclic accelerators: cyclotron, synchrocyclotron, betatron, electron and proton synchrotron, phase stability, colliding beam machines: introduction to Large Hadron Collider and Fermilab Tevatron.

**UNIT-IV**

**Elementary Particles:** Historical introduction, fermions and bosons, particles and antiparticles, Classification of particles, types of interactions, electromagnetic, weak, strong interactions, gravitational interactions, Quantum numbers and conservation laws, isospin, charge conjugation, Introduction to quarks and qualitative discussion of the quark model, high energy physics units.

**TUTORIALS:** Relevant problems on the topics covered in the course.

**Books Suggested:-**

1. Basic Ideas and Concepts in Nuclear Physics: K. Hyde
2. Introduction to Nuclear Physics: H.A. Enge
3. Nuclear Physics : I. Kaplan (Addison Wesley)
4. Nuclei and Particles: E. Segre
5. Introduction to High Energy Physics: D.H. Perkins
6. Elementary Particles: I.S. Hughes

**SEMESTER–VI  
PHYSICS**

**PAPER–B  
ELECTRONICS  
(THEORY)**

**Time: 3 Hours**

**Marks: 35**

**Total Teaching Hrs: 45(3h/week)**

**Pass Marks: 35%**

**Instructions for the Paper Setters:**

There will be five sections. Section A will consist of seven short answer type questions covering the whole syllabus and is compulsory. Sections B, C, D and E will consist of two questions each. The candidates are required to attempt one from each section. All questions carry equal marks.

**UNIT-I**

Concepts of current and voltage sources, p-n junction, Biasing of diode, V-I characteristics, Rectification: half wave, full wave rectifiers and bridge rectifiers, Efficiency, Ripple factor, Qualitative ideas of filter circuits (LC and filters), Zener diode and voltage regulation, Introduction to Photonic devices (solar cell, photodiode and LED).

**UNIT-II**

Junction transistor : Structure and working relation between different currents in transistors, Sign conventions, Amplifying action, Different configurations of a transistor and their comparison, CB and CE characteristics, Structure and characteristics of JEFT, Transistor biasing and stabilization of operating point, Voltage divider biasing circuit.

**UNIT-III**

Working of CE amplifier, Amplifier analysis using h-parameters, Equivalent circuits, Determination of current gain, Power gain, Input impedance, FET amplifier and its voltage gain, Feed back in amplifiers, Different types, Voltage gain, Advantage of negative feed back, Emitter follower as negative feed back circuit.

**UNIT-IV**

Barkausen criterion of sustained oscillations, LC oscillator (tuned collector, tuned base Hartley), RC oscillators, phase shift and Wein bridge.

**Books Suggested:**

1. Basic Electronics and Linear Circuits by N.N. Bhargave, D.C. Kulshreshtha and S.C. Gupta.
2. Electronic Devices & Circuits: Millman & Halkias
3. Solid State Electronic Devices: Ben G. Streatman
4. Physics of Semi Conductor Devices: S.M. Sze and Kwok K. Ng.

**SEMESTER–VI**

**PHYSICS**

**(PRACTICAL)**

**Marks: 30**

**General Guidelines for Practical Examination:**

- I. The distribution of marks is as follows :
 

i) One experiment	<b>15 Marks</b>
ii) Brief Theory	<b>5 Marks</b>
iii) Viva–Voce	<b>5 Marks</b>
iv) Record (Practical file)	<b>5 Marks</b>
- 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.

**List of Experiments**

- i. To trace the B-H curves for different materials using CRO and find the magnetic parameters from these
- ii. To study the stabilization of output voltage of a power supply with Zener diode.
- iii. To draw output and mutual characteristics of an FET (Experiments) and determine its parameters.
- iv. To set up an oscillator and to study its output on CRO for different C values.
- v. To draw the plateau of a GM counter and find its dead time.
- vi. To study the statistical fluctuations using GM counter.
- vii. To study the absorption of beta particles in aluminium using GM counter and determine the absorption coefficient of beta particles from it.
- viii. To study the characteristics of a thermistor and find its parameters.
- ix. To study the response of RC circuit to various input voltage (square, sine and triangular).
- x. To study logic gates (OR, AND, NOT and NAND)

**SEMESTER–VI****HOME SCIENCE****FOODS AND NUTRITION & CHILD DEVELOPMENT–II  
(THEORY)**

**Time: 3 Hrs.**  
**Periods: 6 Hrs./week**

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

**Instructions for the Paper Setters:**

The question paper will consist of five sections A, B, C, D & E. Section A, B, C, D will have two Questions from the respective sections of the syllabus and will be of 12 marks each. Section E will consist of short type questions covering the entire syllabus uniformly and will be of 12 marks.

**Instructions for the Candidates:**

Candidates are required to attempt one question each from section A, B, C, D and section E is compulsory

**Section–A****1. Food Adulteration:**

- i) Definition
- ii) Common Adulteration
- iii) Food standards

2. Concept of balanced diet.
3. Classification of food based on the five/seven food groups.
4. Principles of Meal planning.

**a) Planning of Balanced Diets for the Middle Income Group for the following:**

- i) Pre-school children
- ii) School going
- iii) Adolescents
- iv) Adult-male and female (only moderate worker)
- v) Old age
- vi) Pregnancy
- vii) Lactation

**Section–B****5. Therapeutic Diets & Modification of Normal Diets:**

- a) Principles of Therapeutic Diets
- b) Concept of Soft, Bland, Liquid Diets with examples.



**6. Therapeutic diets in the following conditions with principles involved:**

- a) Fever
- b) Constipation
- c) Diarrhea
- d) High Blood Pressure/Hypertension
- e) Diabetes Mellitus

**Section–C**

**7. Social Development:**

- a) Stages of Social Development
- b) Pattern of Social Development
- c) Role of Family and School in the Development of the Child.

**8. Play:**

- a) Significance of Play
- b) Types of Play
- c) Play Materials/Equipment required for various age group.

**9. Common Behavior Problems and their Remedies–Bed Wetting, Thumb Sucking, Nail Biting, Temper-Tantrums.**

**Section–D**

**10. Pregnancy:**

- a) Signs and Symptoms of Pregnancy
- b) Discomforts
- c) Complications
- d) Care During Pregnancy
- e) Methods of Family Planning in Brief

**11. Pre Natal Development:**

- a) Stages of Pre Natal Development
- b) Factor Affecting Pre Natal Development

**12. Feeding of the Infant**

- a) Importance and Process of Breast Feeding
- b) Bottle Feeding
- c) Weaning
- d) Important Weaning Foods
- e) Importance of Weaning

**References Books:**

Sr.no.	Book title	Author
1.	Art of Vegetarian Cookery	Wasson, Betty
2.	Breast Feeding and The Child Care	Jayarao, K.S.
3.	Nutrition for Mother and Child	Venkatachalan, P.S.
4.	Basic Nutrition and Diet Therapy	Corinnet, Robinson
5.	Essentials of Food and Nutrition	Swaminathan, M.
6.	Nutritive value of Indian Food	C. Gopalan

**SEMESTER–VI****HOME SCIENCE****(PRACTICAL)****Time: 3 Hours****Practical Marks: 40****Teaching: 6 Periods/week****Note: One Group will consist of 15 Students.**

1. Planning Calculation of Calories, Proteins, Fats and Carbohydrates. Preparation of diets for the following:
  - a) Pre-School child
  - b) School going/packed lunch
  - c) Adolescence
  - d) Adult (Man & Woman) moderate worker pregnancy and lactation diets.
  - e) Old age
2. Cooking and serving of the following: Invalid cookery: soft, liquid, fluid diets.
3. Low calories recipe (five)
4. Low cost recipe (five)
5. Enhancing Nutritive value (five).

**List of Books:**

1. Applied Nutrition, R. Rajalakshmi, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Principles of Nutrition-Dietetics, Dr. M. Swaminathan, The Bangalore Printing and Publishing Co. Ltd., 88, Mysore Road, Bangalore.
3. Food & Nutrition, By Educational Planning Group, Arya Publishing House, Karol Bagh, New Delhi-5.
4. Normal and Therapeutic Nutrition, By Corinne H. Robinson, Marlya R. Lowler Macmillan Publishing Co., New York, Collier Macmillan Publishers, London.

**SEMESTER–VI****COSMETOLOGY (VOCATIONAL)****(THEORY)**

**Time: 3 hrs.**  
**Periods/Week: 4**

**Max. Marks: 100**  
**Theory Marks: 35**  
**Practical Marks: 50**  
**College Lab Training Marks: 15**

**Instructions for the Paper Setters:**

**Note: There will be 2 sections.**

**Section–A:** It will consist of 5 short type questions, and candidate will be required to attempt 3 of them. Each question carry 5 marks each.

**Section–B:** It will consist of 4 essay type questions, and candidate will be required to attempt 2 of them. Each question carries 10 marks each.

**Note:** Lab training should be taken in college cosmetology lab. And report with picture profile should be submitted by each student with the remarks of lab instructor.

**COURSE CONTENTS:****1. Salon Management**

- a) Salon Planning
- b) Types of Salon Ownership
- c) Record Keeping
- d) Types of Services Offered, Types of Employers
- e) Professional Ethics as an employee, co-worker, as an operator

**2. Safety Precautions**

- a) Health and safety risk
- b) Accidents due to chemicals, electric equipments, services
- c) Consultation
- d) Emergency Procedure
- e) First Aid in Salon

**3. Chemical Treatment of Hair**

- a) Permanent waving Procedure with the knowledge of hair porosity
- b) Classification of hair colouring: Application of temporary hair colour, semi-permanent hair colour and permanent hair colour

**SEMESTER–VI**

**COSMETOLOGY (VOCATIONAL)**

**(PRACTICAL)**

**Time: 4 Hrs.**  
**Periods/Week: 6**

**Marks: 50**

**1. Wigs and hair pieces**

- a) Wig materials
- b) Wig Construction
- c) How to attach hair pieces?
- d) How to clean and care for and hair pieces?

**2. Hair Colouring**

- a) Understanding colour
- b) International colour code
- c) Knowledge and Usage of Permanent Hair colour
- d) Highlightening Procedure

**SEMESTER–VI****CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)****COMMUNITY NUTRITION  
(Theory)****Time: 3 hrs.****Max. Marks: 100****Theory: 60****Practical: 40****Pds – 6 Pds/Week****Instruction for the paper setter.**

- 1) Theory paper will be of 3 hrs duration.
- 2) Question paper should cover all the topics of the syllabus.
- 3) There will be 8 questions. Students are to attempt 5 questions (12 marks each question).
- 4) Question 1 is compulsory which contains short answer type questions.

**Objectives :-**

To impart nutrition education to vulnerable group of community.

**Unit–I**

1. Concept of community, health, malnutrition, maternal and infant mortality, morbidity, nutritional status.
2. Major nutritional problems prevalent in India - Protein - energy malnutrition, iron deficiency anemia, Vit - A deficiency, iodine deficiency disorder, Vit - D and calcium deficiency, floursis.

**Unit–II**

3. Malnutrition and Infection - Nutritionally relevant infection and infestation.
4. Effect of malnutrition on defense mechanism.
5. Effect of infection on nutritional status and growth and development.

**Unit–III**

6. Assessment of nutritional status using different methods
  - a) Anthropometric measurement, standards for comparison age assessment, weight, height, skin folds, arm, head and chest circumference, use of growth chart.
  - b) Clinical sign and symptoms of malnutrition, classification of clinical sign and symptoms methods of reporting results.
  - c) Biochemical assessment - most commonly used biochemical methods and their standard ranges.
  - d) Diet Surveys - Population sampling, methods of dietary survey points requiring special attention, adult consumption unit analysis of diet survey data

## SEMESTER–VI

### CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)

#### Unit–IV

7. Channels of nutrition education in the community, Nutrition education method - lectures and Demonstration, workshops, films, posters, charts, exhibition, books, pamphlets, newspaper, radio & television, power point-presentations.
8. Planning and implementation of Nutrition education programme, objective, selecting of topic, and audio visual aid for target group.

#### Unit–V

9. Method of enhancing nutritive value of food - Supplementation, sprouting, fermentation, fortification enrichment.
10. Food Fadism and Faculty Food habits.

#### Unit–VI

11. National Nutrition programme & policies.
  - a) Integrated Child Development Services. (ICDS)
  - b) Applied Nutrition Programme. (ANP)
  - c) Special Nutrition Programme. (SNP)
  - d) Mid-day meal Programme. (MMP)
  - e) Balwadi Nutrition Programme. (BNP)
12. Role of National and international agencies in community Nutrition.
  - a) Indian council of Agriculture Research. (ICAR)
  - b) Indian council of Medical Research. (ICMR)
  - c) Central Food Technological Research Institute, Mysore. (CFTRI)
  - d) National Institute of Nutrition, Hyderabad. (NIN)
  - e) Food and Agriculture organization. (FAO)
  - f) World Health organization. (WHO)
  - g) United Nations Children's Fund. (UNICEF)
  - h) CARE.

**SEMESTER–VI**

**CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)**

**References Books:**

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

**SEMESTER–VI**

**CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)**

**COMMUNITY NUTRITION  
(Practical)**

**Time: 3 hrs.**

**Pds – 6 Pds/Week**

**Marks: 40**

**Instruction for the paper setter.**

**Note :-** Paper will be set on the spot by the examiner practicals

1. Cook following receipt and calculate their cost and nutritive value.
  - a) Low cost energy and protein rich receipts.
  - b) Low cost iron rich receipts.
  - c) Low cost calcium rich receipts.
  - d) Value addition of cereal & pulses.
  - e) Weaning foods
2. Assessment of nutritional status of vulnerable group using anthropometry/dietary surveys. Project report will be judged by the external examiner.
3. Development of audio-visual aids for imparting nutrition education- eg. charts, posters, flashcards and power-point presentation.
4. Planning, implementation and evaluation of nutrition education for specific target groups.
5. Visit to see the functioning of mid-day meal programme in schools or any health oriented programme.

**Reference Books:-**

Food and Nutrition by Dr. M. Swaminathan.



**SEMESTER–VI**  
**FASHION DESIGNING AND GARMENT CONSTRUCTION (VOCATIONAL)**

**HISTORY COSTUMES OF INDIA & WORLD–II**  
**(THEORY)**

**Time: 3 Hrs.**  
**Periods/week: 4**

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

**General Instructions for the Paper Setters:-**

The question paper consists of eight questions, out of which student will attempt five.  
All questions carry equal marks.

**1. Historic Costumes of India and World:**

- a) Rome
- b) Asiatic

**2. Traditional Costumes of the following States of India:**

- a) Gujarat
- b) Manipur
- c) Bengal
- d) Kerela
- e) Karnataka

**3. Traditional Textiles of India:**

- a) Irkal & Paithani of Maharashtra
- b) Pochampali of Andhra Pradesh
- c) Sanganeri prints of Rajasthan
- d) Kanchipuram sarees of Tamil Nadu

**References Books:**

<b>Sr.no.</b>	<b>Book title</b>	<b>Author</b>
1.	Textiles and Dress of Gujarat	Edwards,Eiluned
2.	Traditional Indian Textiles	
3.	Costume Textiles and Jewellery of India	Vandana Bhandari
4.	Survey of Historic Costumes	Phyllis Tortora
5.	Indian Costume and Collection	B.N. Goswamy
6.	Costume and Textile of Royal India	Ritu Kumar

**SEMESTER–VI**  
**FASHION DESIGNING AND GARMENT CONSTRUCTION (VOCATIONAL)**

**ADVANCE DESIGNING, CONSTRUCTION & DRAPING–II**  
**(PRACTICAL)**

**Time: 4hrs.**  
**Periods/Week: 2x6**

**Marks: 60**

**Part–I**

**Design Draft and Construct following:**

1. Jacket/ Coat.
2. Evening Gown/ Formal Indian Dress.

**Part–II**

1. Draping of Skirt Block Front.
2. Draping of Skirt Block Back
3. Draping of Cowl Neckline

**General Instructions to the Paper Setter:**

1. Design any one garment from syllabus on paper bag–Front & back, Adaptation to be made from sloper, Cutting & Placement, Construction and finishing of garment.

**Marks: 40**

2. Draping of any block.

**Marks: 20**

**Note: Please send the material list.**

**SEMESTER–VI**

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

**Time: 3 Hrs.**  
**Lectures/week: 6**

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

**Instructions for the Paper Setters:**

Ten questions will be set; students are required to attempt any 6, carrying 10 marks each.

**Course Contents:**

**Community Outreach Programmes**

- Parent and community involvement
- Preschool teacher education in India
- NCTE courses for teachers education in early childhood education
- Pre-primary teacher education curriculum
- Women nurtures and care takers
- Parent participation in school

**Issues related to Early Childhood Care and Education**

- Global issues and specific issues related to India
- Growth and development of pre-school teachers education in India
- Government programmes
- National thrust in global context
- Professional training in childhood
- Future trends in early childhood care and education

**SEMESTER–VI**

**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 for practical examination**

Written Practical:	<b>10 Marks</b>
Class Performance:	<b>10 Marks</b>
Practical File:	<b>5 Marks</b>
Oral Examination:	<b>5 Marks</b>
Preparation of Activity Material:	<b>10 Marks</b>

**Course Contents:**

- \* Formation of PTA.
- \* Working out strategies for community involvement in ECE programmes
- \* Preparation of two play material from indigenous/waste products
- \* A visit to balwadi school for assessing the curriculum of children

**References:**

1. Swaminathan, Mina. The First Five Years: A critical perspective on Early Childhood Care and Education in India, Sage Publications, New Delhi.
2. Government of India 1986. A Guide Book for Anganwadi Workers, New Delhi: Department of Women and Child Development, Ministry of Human Resource Development.
3. Sciarray, D.A. and Dorsery, A.G. 1979. Developing and Administering a Child Care Centre, Honglton Mifflin Company, Boston.
4. Desai, A.N. helping the Handicapped: Problems and prospects, APH Publishing Co., New Delhi
5. Grewal, J.S (1984) Early childhood education, Agra National Psychological corporation.
6. Guide to Activities in creative Drama and Puppetry, (1994) CHETNA (Gujarat).

**SEMESTER–VI**

**FOOD SCIENCE & QUALITY CONTROL (VOCATIONAL)**

**FSQC–11: FOOD PLANT LAYOUT & MANAGEMENT (THEORY)**

**Time: 3 Hours**

**Max. Marks: 100**

**Theory Marks: 75**

**Practical Marks: 25**

Instructions for the Paper Setters: Question paper will cover both the main topics and divided into three parts. Each part will contain at least two questions and students will be asked to attempt five questions in all with at least one from each part and not more than two from any part.

**PART–I**

Importance of a plant layout selection of site and layouts of different food industries, selection of equipment, machinery and building material, selection and planning of manufacturing process and service facilities, maintenance and replacement, depreciation of machinery, management set up in a plant.

**PART–II**

Market and Consumer Research, Needs and types of Foods consumption trends. Economics, Psychological, Anthropological and Sociological dimensions of food consumption pattern. Trends in social change and its role in diet pattern. Using social trends as a framework in new product innovation. Food situation in India and outside. Trapping the unconventional post-harvest losses and prospects for food processing for export.

**PART–III**

Traditional foods-Status and need for revival in the context of westernized non-traditional foods, urbanisation and such factors. Product Development: Primary Processing, Secondary Processing, Types of products e.g. Quick cooking, fast foods, fabricated food, convenience foods.

**Recommended Books:**

1. Principle of Food Sanitation by Marriott, 5th ed., 2006, CBS Publishers, New Delhi.
2. Food Processing Waste Management by Green JH and Kramer A, 1979, AVI Publishers, USA.
3. Food Science by Potter NN, 5th ed., 2006, CBS Publishers, New Delhi.

**SEMESTER–VI**

**FOOD SCIENCE & QUALITY CONTROL (VOCATIONAL)**

**FSQC–12: FOOD PLANT LAYOUT & MANAGEMENT (PRACTICAL)**

**Marks: 25**

**List of Practicals:**

1. Calculation of depreciation of machinery and processing costs.
2. Determination of B.O.D./COD.
3. Preparation of layout and process diagram of potato crisp manufacturing plant.
4. Preparation of layout and process diagram of Jam/Marmalade manufacturing plant.
5. Preparation of layout and process diagram of Bread making plant.
6. Preparation of layout and process diagram of a dairy industry.
7. Preparation of layout and process diagram of wine making unit.
8. Preparation of layout and process diagram of a modern slaughter house.
9. Preparation of layout and process diagram of a confectionary unit.
10. Determination of sanitary status of plant equipment.
11. Visit to various food industries.

**SEMESTER–VI**

**FINE ARTS  
(DRAWING & PAINTING)**

**PAPER–A: THEORY**

**Time: 3 Hrs.**

**Max. Marks: 100  
Theory Marks: 50  
Practical Marks: 25 + 25**

**Work Load:**

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

**OUTLINES OF TEST**

**Note:**

- 50 Marks for the theory paper and 25 marks for each practical.
- The question paper will cover the entire syllabus.
- Questions should be based on world famous painting and sculptures whose slides are easily available.
- Question paper should cover the syllabus uniformly.
- The paper setter should set the paper in two sections section A and B.
- The division of the marks will be as under:

**Section A:** 25 marks for 25 short answer questions. Each question carries 1 mark.

**Section B:** 25 marks for 5 questions. The examiner will set 8 questions. The candidate will attempt 5 questions of 5 marks each. Compartment candidates in the subject of Fine Arts will appear only in theory paper during supplementary exam. Previous marks of practical paper will be considered for the aggregate.

**Indian Painting:**

- Impact of British on Indian Art- Company School
- Bengal School- Abanindranath Tagore
- Contemporary Art- Rabindranath Tagore, Amrita Shergill, Jamini Rai
- S. Sobha Singh, Dhanraj Bhagat, K.K. Hebbar, M.F. Hussain, Satish Gujral.
- Kalighat Painting

**SEMESTER–VI**

**FINE ARTS  
(DRAWING & PAINTING)**

**PAPER–B: LANDSCAPE PAINTING  
(PRACTICAL)**

**Time: 5 Hrs**

**Marks: 25**

**Work Load:**

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

On the spot landscape painting. Emphasis should be given on perspective, Colour and its application in harmony.

**Medium:** Any medium

**Size:** ½ Imperial



**SEMESTER–VI****FINE ARTS  
(DRAWING & PAINTING)****PAPER–C: FULL LIFE DRAWING  
(PRACTICAL)****Time: 5 Hrs****Marks: 25****Work Load:**

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

Rendering of full life study should be done in any medium. Emphasis should be given to structure, volume, proportion, tones and texture.

**Medium:** Any medium**Size:** ½ Imperial

Candidates will submit-

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

**SEMESTER–VI**

**PAPER–A: HISTORY OF ART**

**Time: 3 Hours**

**Marks: 50**

**Instructions for the Paper Setters:-**

- Note:** (a) The question paper should cover entire syllabus. It may contain very specific short answer questions.
- (b) The paper-setter should set 15 questions in all. Students will attempt 10 questions of 5 marks each.

History of European Painting and sculpture from C. 1850 onwards-.

Impressionism & Post –Impressionism

Cubism

Expressionism

Abstract Expressionism

Surrealism

**SEMESTER–VI**

**PAPER–B: HISTORY OF ART**

**Time: 3 Hours**

**Marks: 50**

**Instructions for the Paper Setters:-**

- Note:** (a) The question paper should cover entire syllabus. It may contain very specific short answer questions.
- (b) The paper-setter should set 15 questions in all. Students will attempt 10 questions of 5 marks each.

Theory and Principles of Art and its appreciation

.Aesthetic approach of the Indian and the Western Art

Terms-Form, Content

Abstraction in art

Realism and Naturalism

Functions of art.

**SEMESTER–VI**

**GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL)  
(THEORY)**

**Time: 3 Hrs**

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

1. Enameling
2. Chasing and Repouse
3. Flexible Shaft
4. Riveting
5. Sand Blasting
6. Lowering and Raising the Karat of Gold and process of Gold electroplating.

**SEMESTER–VI**

**GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL)  
(PRACTICAL)**

**Marks: 50**

1. Domestic Jewellery - 3 Final Designs
2. Export Jewellery -3 Final Designs
3. Exercise on:
  - a) Chasing
  - b) Repouse

Development of Bangles, Bracelets, Ring etc.

Through metals by using above techniques

**SEMESTER–VI**

**STILL PHOTOGRAPHY & AUDIO PRODUCTION (VOCATIONAL)  
(THEORY)**

**Time: 3 Hours**

**Max. Marks: 100**

**Theory Marks: 50**

**Practical Marks: 50**

**Instructions for the Paper Setters:**

Total No. of questions to be set: 20

Total No. of questions to be attempted: 12

Question paper is divided in two parts.

**Section–A:** It will consist of 16 questions. Student will attempt 10 questions. Each question will carry three marks. **(Total: 30 Marks)**

**Section–B:** It will consist of 4 questions. Student will attempt any 2 question. Answer will carry ten marks. **(Total: 20 Marks)**

**Course Contents:**

1. Characteristics of sound wave and its propagation.
2. Acoustics, Echo, R.T. Decibels etc.
3. Quality of sound, Frequency reference, S.N ratios distortions.
4. Directional response and polar diagram.
5. Factors governing the selection of mikes.
6. Types of cables and connectors and their uses.
7. Magnetic recording principles.
8. Tape recorders and playback machines.
9. Audio tapes.
10. Post production–Editing, sucking laying tracks.
11. Mixing of sound.
12. Monitoring.
13. Difference in the recording, editing and mixing for different media.
14. Sound recordists role in a production crew.

**Suggested Readings:**

<b>Sr. No.</b>	<b>Book Name</b>	<b>Author</b>
1.	Sound: A Question and Answer Book (Fact Finders)	Fiona Bayrock
2.	Audio Mastering: Essential Practices	Jonathan Wyner

**SEMESTER–VI**

**STILL PHOTOGRAPHY & AUDIO PRODUCTION (VOCATIONAL)**

**AUDIO VISUAL  
(PRACTICAL)**

**Time: 6 Hours**

**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.  
Technical competence is expected. The students should also use updated and latest techniques in his/her work.
3. Photographs clicked during examination are supposed to be submitted by the student in the form of C.D. or D.V.D. as desired by the examiner.

**Instructions for the 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 Internal Examiner as per requirement.

**Course Contents:**

1. On slide editing tables.
2. Learn to operate the following equipment:-
  - a) Audio Cassette Player
  - b) Amplifier for Recording
3. Sound Recording
  - a) Use of Microphone
  - b) Cassette Player
  - c) Cassette recording with synch
  - d) Sound Mixer
  - e) Amplifier Monitoring

4. Sound and Narration editing using the following equipment:-
- a) Cassette Player
  - b) Cassette Recorder
  - c) Amplifier
  - d) Sound Making and Channel
  - e) Operation of Slide Projector
  - f) Sound Making & Channel
  - g) Operation of Slide Projector
  - h) Dissolve Units

**Suggested Readings:**

<b>Sr. No.</b>	<b>Book Name</b>	<b>Author</b>
1.	Sound: A Question And Answer Book (Fact Finders)	Fiona Bayrock
2.	Audio Mastering: Essential Practices	Jonathan Wyner



**SEMESTER–VI**  
**APPLIED ARTS**

**ART APPRECIATION AND ADVERTISING**  
**(THEORY)**

**Time: 3 Hours**

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

**Instructions for the Paper Setters:**

1. No. of questions to be set: 15
2. No. of questions to be attempted: 10
3. The questions are to be equitably distributed among all the topics of the Syllabus.
4. Each question will carry 5 marks.

**Course Contents:**

- a. Fine Screen
- b. Mechanical Tint
- c. Screen Size
- d. Reverse
- e. Negative, Positive
- f. Bleach Out
- g. Spatter
- h. Over Size
- i. Center spread
- j. Bridging the Gutter
- k. Cut Out Blue Tint
- l. Half Tone Process
- m. Doordarshan in Advertising
- n. Art Director
- o. Marketing Executive
- p. Visualizer
- q. Copywriter.

**Suggested Readings:**

<b>Sr. No.</b>	<b>Book Name</b>	<b>Author</b>
1.	Kleppner's Advertising Procedure	J.Thomas Russel/ Glen Verrill/ Ronald lane
2.	Advertising Principals & Practice VI Edition	William Wells, John burnett, Sandra Morianty
3.	Advertising Manager's Hand Book (Third Edition)	Stansfield

**SEMESTER–VI  
APPLIED ARTS**

**OUTDOOR CAMPAIGN: POSTER AND  
HOARDING (PRACTICAL)**

**Time: 6 Hours**

**Marks: 50**

**Size: ½ Imperial**

**Medium: Poster Colours**

**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. Limited references while preparing Poster and Hoarding can be taken in case of a Commercial Topic. Logo and writing style of the existing company can be taken from any available source.
4. Any one of the above (Poster and Hoarding) is to be made by the students for the examination

**Instructions for the Students:**

1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.
2. Size: As required

**Course Contents:**

Topics: Commercial Topics like Coca-Cola, Archies, NIFT, Fashion etc.

Educational topics like Donate Blood, Donate Eyes, Humanity Cause, and Increase Educational Standards etc.

**Suggested Readings:**

<b>Sr. No.</b>	<b>Book Name</b>	<b>Author</b>
1.	Art of The Modern Movie Poster	Judith Salavetz, Spencer Drate & Sarowitz
2.	Regular Graphic Design Today	Gestalten

**SEMESTER–VI****SCULPTURE****(THEORY)****Time: 3 hrs****Max. Marks: 100**  
**Theory Marks: 50**  
**Practical Marks: 50****Note:**

1. The question paper should cover the entire syllabus.
2. The paper setter should set fifteen (15) questions in all and students shall attempt 10 ten questions.
3. The questions can be repeated from previous question paper.

**Chapter – I:****Khajuraho Sculpture**

- Introduction ( Shiv Parvati, Apsaras Playing a Flute, Apsaras applying Collyrium to her eyes, Lady with a looking glass, mother & child, Lady writing a love Letter and General Note on Apsaras or sura Sundaries Sculptures )

**Chapter – II:**

Retrospective and Contemporary Indian Sculptors (Biography & their selected works)

**1. Ramkinker Baij**

- Santhal Family,
- Harvester,
- Portait of Abanindranath Tagore

**2. D.P Roy chowdhary**

- Triumph of Labour
- Matrtyr's Memorial
- Sculptor's Father (Potrait)

**3. Pradosh Dass Gupta**

- Volume in three Masses
- Jai Hind
- Mother and Child

**4. Chintamoni Kar**

- Skating the stage
- Park Figure (1949)
- Seated Figure (1960)

**5. Dhanraj Bhagat**

- Flute Player
- Three Women
- Cosmic Man

**6. Sankho Chowdhary**

- Women with Pitcher
- Standing Figure
- Mahatma Gandhi

**7. Satish Gujral**

- Deity Series (1990)
- Prayer (2000)
- The Crucifixion (1981)

**SEMESTER–VI**

**SCULPTURE**

**(PRACTICAL)**

**Time: 6 Hrs**

**Marks: 50**

- |   |       |
|---|-------|
| 1. Terracotta Mural based on Birds, Flora and Fauna (Minimum Size I' x I' (Feet)  | Total |
| No. work–1  |       |
| 2. Head study in clay, modeling from life head only in life size. This work should be produced in plaster of Paris/ cement. (Total No. of work–1) |       |
| 3. Composition in round based on Human Figures/ Animals/ Birds. These work should be produced in P.O.P/ Fiber Glass/ Metal (Total No of work–1)   |       |

**Books Recommended:**

- |   |                                     |
|---|-------------------------------------|
| 1. History of Fine Arts in India and West   | By Edith Tomory                     |
| 2. Indian Art ( A concise History)          | By Roy C Craven                     |
| 3. Satish Gujral (Selected works 1947–2000) | By Lalit Kala Akademi, New Delhi    |
| 4. Indian Sculpture Today (1983)            | By Jehangir Art Gallery Publication |
| 5. Bhartiya Murtikala ka Parichaya          | By Bhim Singh Berval                |
| 6. D.P Roy Chaudhary                        | By Lalit Kala , New Delhi (1973)    |
| 7. Sankho Chaudhary                         | By Lalit Kala , New Delhi (1970)    |
| 8. Ram Kunker Bajj                          | By Lalit Kala , New Delhi (1961)    |
| 9. Chintamani Kar                           | By Lalit Kala , New Delhi (1965)    |
| 10. Prodosh Das Gupta                       | By Lalit Kala , New Delhi (1971)    |

**SEMESTER–VI**

**MUSIC (VOCAL)  
(THEORY)**

**Time: 3 Hours**  
**Theory: 3 Periods per week**

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

**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 a base instrument in practical examination.
3. While sending the syllabus to paper setter in theory the syllabus prescribed for the practical paper should also be sent.
4. The paper setter will set **Eight** questions in all. 1<sup>st</sup> question will consist of 10 objective type questions which will be compulsory to all carrying 1 mark each. The candidate may be asked to attempt **Five** questions in all.
5. Candidate can take both subjects i.e. Vocal & Instrumental Music as elective subject.
6. Candidate can take Tabla subject along with Music Vocal or Music Inst.

**COURSE CONTENTS:**

1. Historical Development of Indian Music during Modern Period.
2. Method of formation of 72 Thatas of Dakshini Music System of Pt. Vyankat Mukhi.
3. Short notes on the following terms:  
i) Sargam Geet ii) Lakshan Geet iii) Saadra iv) Raag-Malika.
4. Detailed knowledge of following Gharanas of Khayal Gayaki.  
a. Gwalior  
b. Kirana  
c. Agra  
d. Patiala  
e. Delhi
5. Detailed description and notations :-  
i) Jaunpuri ii) Kalavati iii) Bhageshwari
6. Detailed study of the following Talas:  
i) Jhumra ii) Dhammar.
7. Essay writings on the following Topics:  
i) Raag Aur Ras ii) Music & Literature
8. Life & Contribution of the following musicians:  
i) Girija Devi ii) Fayyaz Khan iii) Sumati Mutatkar.
9. Role of devotional music in human life.
10. Contribution of Sri Guru Gobind Singh Ji towards Indian Music.

**SEMESTER–VI**

**MUSIC (VOCAL)  
(PRACTICAL)**

**Time: 20 Minutes for each student**  
**Periods/Week: 9**

**Marks: 50**

1. One Drut Khayal in each of the following Ragas with simple Alaps and Tanas: Jaunpuri, Kalavati, Bhageshwari.
2. One Vilambit Khayal in any of the Ragas prescribed in the course with simple Alaps and Tanas.
3. One Dhammar in any of the prescribed Ragas.
4. One Shabad/Bhajan in any of the Ragas prescribed in the course.
5. Brief Knowledge of Non Detailed Ragas : Jansammohani, Ragageshwari, Asawari
6. Ability to sing a Cinematic Song with the help of Harmonium.
7. Ability to recite Jhumra and Dhammar showing Khali Tali with hand motion in Ekgun, Dhugan Laikaris.
8. Ability to play five alankars on the Harmonium based on the Khamaj Thata.
9. Ability of play theka of Ektaal on Tabla.

**Books Recommended:**

1. Bharatiye Sangeet Ka Itihaas, Sharat Chandra Paranjpay.
2. Rag Parichya Part – I, II, and III by Shri Harish Chnder Srivastava.
3. Hamare Sangeet Rattan Sangeet Karyalaya, Hathras.
4. Kramik Pustak Malika by Vishnu Narayan Bhathkhande.
5. Sangeet Nibandhavli, Dr. Gurnam Singh, published by PunjabiUniversity, Patiala.
6. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh.
7. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, 422, 15/A, Chandigarh.
8. Abhinav Geetanjali Pt. Ramashrya Jha I,II,III,IV,V.
9. Tantri Nada Pt. Lalmani Mishar.

**SEMESTER–VI**

**MUSIC (INSTRUMENTAL)  
(THEORY)**

**Time: 3 Hrs.**

**Theory: 3 periods per week**

**Total Marks: 100**

**Theory Marks: 50**

**Practical Marks: 50**

**Instructions given to the examiners are as under:–**

1. There should not be more than fifteen students in a batch for practical examination.
2. While sending the syllabus to paper setter in theory the syllabus prescribed for the practical paper should also be sent.
3. The paper setter will set eight questions in all. 1<sup>st</sup> question will consist of 10 objective type questions which will be compulsory to all carrying 1 mark each. The candidate may be asked to attempt five questions in all.
4. The External Examiner will set question paper for practical on the spot.
5. Candidate can take both subjects i.e. Instrumental music and Vocal music as elective subjects.
6. Candidate can take Tabla subject along with instrumental music or vocal music.

**Course Contents:**

1. Role of media in Indian Music.
2. Short notes of the following musical terms: Kan, Baaj, Jamjama, Murki
3. Life & contribution of the following Musicians:  
i) Nikhil Benerji (Sitar) ii) Panna lal Ghosh (Flute).
4. Formation of 72 Thatas by Pt. Vyankat Mukhi
5. Relation of Raga with Season & Time.
6. Detailed knowledge of Sahayak Nad.
7. Detailed description and notations of prescribed Ragas:  
i) Hameer ii) Vrindavani Sarang iii) Bhairavi
8. Detailed knowledge of following Ragas:–  
i) Kedar ii) Madhmaadh Sarang iii) Bilaskhani Todi
9. Detailed knowledge of the following Talas:  
i) Jhumra ii) Dhamar.
10. Salient features of Gurmat Sangeet.



**SEMESTER–VI**

**MUSIC (INSTRUMENTAL)  
(PRACTICAL)**

**Time: 20 Min. for each student**  
**Practical: 9 periods per week**

**Marks: 50**

1. Ability to play 10 Alankars in the Swaras of Bharaivi Thata.
2. One maseet khani Gat in any Raga prescribed in your course Hameer, Vrindavni Sarang & Bhairvi.
3. Rajakhani Gat in each Raga.
4. One Gat in Dhammar Style in the prescribed Ragas.
5. Non detailed Raagas : Bilaskhani Todi, Kedar and Madhmaadh Sarang.
6. Recite Jhumra & Dhamar Tal in Ekgun & Dugan Layakaries.
7. Ability to play Theka of Ektaal on Tabla.
8. Ability to sing a shabad/Bhajan with Harmonium.

**Books Recommended:**

1. Bharatiye Sangeet Ka Itihaas, Sharat Chandra Paranjpay.
2. Rag Parichya Part – I, II, and III by Shri Harish Chnder 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 Ratan, Luxmi Narayan Garg, Sangeet Karayalaya, Hathras
7. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh
8. Kramik Pustak Malika by Vishnu Narayan Bhathkhande.
9. Sangeet Nibandhavli, Dr. Gurnam Singh, published by PunjabiUniversity, Patiala.
10. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, 422, 15/A, Chandigarh.

**SEMESTER–VI**

**INDIAN CLASSICAL DANCE  
(THEORY)**

**Time: 3 Hrs**  
**Periods/Week: 3**

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

**Instructions for the Paper Setters/Examiners:**

1. The paper setter will set eight questions. 1st question will consist of 10 objective type questions which will be compulsory to all carrying 1 mark each. The candidate may be asked to attempt five questions.

**Course Contents:**

1. Detailed knowledge of Kuchipudi with its historical background, style, costume and music etc.
2. Abhinaya and its bhedas.
3. Guru – Shishya parampara.
4. Thumri in Kathak.
5. Indian and Western Dance.
6. Nayak – Nayika Bhedas.
7. Folk dances of Haryana.
8. **Notation of:**
  - (i) **PANCHAM - SWARI - 15 MATRAS**
    - a) Tatkar in Ekgun, Dugun & Chougun Layakaries.
    - b) Thaata- 1
    - c) Tehai-1
    - d) Amad-1
    - e) Salami-1
    - f) Tora-2
    - g) Paran-1
    - h) Chakardar Paran -1
    - i) Kavita-1
  - (ii) **TEEN – TAAL - 16 MATRAS**
    - a) Tatkar in Ekgun, Dugun & Chougun Layakaries.
    - b) Thaata- 1
    - c) Amad-1
    - d) Salami-1
    - e) Damdar and Bedam Tehai - 1 - 1
    - f) Tora-2
    - g) Paran-1
    - h) Farmaishi Paran -1
    - i) Pramelu
9. Arh layakary in Teen – Taal.
10. Definition and Notation of following Taals in Ekgun, Dugun, Tigun and Chougun Layakaries.
  - (a) Teen Taal
  - (b) Pancham Swari

## SEMESTER–VI

### INDIAN CLASSICAL DANCE (PRACTICAL)

**Time: 20 minutes for each student**  
**Periods/Week: 9**

**Marks: 50**

**Instructions for the Examiners:** The Examiner will set practical paper on the spot.  
**Instructions given to the examiners are as under:**

1. There should not more than fifteen students in a batch for practical examination.
2. Harmonium will be allowed as accompaniment to perform Nagma.
3. Separate practical paper should be set for each class from practical of prescribed syllabus on the spot.

#### **COURSE CONTENTS:**

1. **PANCHAM SWARI TAAL (15 MATRAS)**
  - a) Tatkar in Ekgun, Dugun and 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
2. **TEEN TAAL (16 Matra)**
  - a) Tatkar in Ekgun, Dugun & Chougun Layakaries.
  - b) Thaat-1
  - c) Amad-1
  - d) Salami-1
  - e) Damdar and Bedam Tehai - 1 - 1
  - f) Tora-2
  - g) Paran-1
  - h) Farmaishi Paran - 1
  - i) Pramelu
3. Padhant of all the Practical material in given Taals.
4. Padhant of all thekas in Dugun & Chougun Layakaries.
5. Kathak Choreography in Tarana.
6. Nagma in Teen Taal and Pancham Swari.
7. Ability to play the theka of Jhaptal on Tabla.
8. Ability to play the theka of a Jhaptal on Tabla.
9. Ability to sing National Anthem on 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 Pripekesh Mein Kathak Nritya, Maya Taak, Knishka Publishers, New Delhi, 2005.
4. Nibandh Sangeet, Laxmi Naryan Garg, Sangeet Karyalaya, Hathras, 2004.
5. Kathak Nritya Shiksha Part-I & Part II, Dr. Puru Dadhich, Bindu Prakashan, Ujjain (MP)

## SEMESTER–VI

### TABLA (THEORY)

**Time: 3 Hours**  
**Theory: 3 periods per week.**

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

#### Instructions given to the examiners are as under:

1. There should not be more than fifteen students in a batch for practical examinations.
2. Harmonium will be allowed as accompaniment to perform the Nagma.
3. While sending the syllabus to paper setter in theory the syllabus prescribed for practical paper should also be sent.
4. The paper–setter will set eight questions.. 1st question will consist of 10 objective type questions which will be compulsory to all carrying 1 mark each. The candidate will be asked to attempt five questions.
5. Candidate can take Tabla subject with Vocal or Instrumental Music (Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shehnai, Rabab, Saranda, Taus, Santoor and any other Swar Vadhya to the played on the basis of Indian Classical Music).

#### COURSE CONTENTS:

1. Define and Explain the following musical terms:
  - a. Pitch
  - b. Intensity
  - c. Timbre
2. Importance of Parant & its importance in Tabla.
3. Tabla as Solo Vadan.
4. Notation & description of the following Talas:
  - a. Mat Tal- One Peshkar, Two Kayada, Five Paltas with Tihaai, two Tukdas, two Tihaais, One Farmaishi Paran, One Chakardar Paran, One Rella & Gat.
  - b. Chaar Tal- Two Tukdas, Two Tihaais, Two Paran, Two Rella.
  - c. Dhammar- Two Tukdas, Two Tihaais, Two Paran, Two Rella.
5. Life Sketch & Contribution of the following Musicians:
  - a. Abaane Mistri
  - b. Anuradha Pal
  - c. Yogmaya Shukla
6. Detailed Knowledge of structure & formation of Tabla.
7. Write an Essay on Rhythm Emotion & Mood.
8. Detail knowledge of Percussion Instruments used in Gurmat Sangeet.
9. Sound techniques of Tabla accompanying with different singing styles.
10. Detailed knowledge of western percussion instruments.

**SEMESTER–VI****TABLA  
(PRACTICAL)**

**Time: 20 minutes for each student**  
**Practical: 9 periods per week.**

**Marks: 50**

1. Taal Prescribed: Mat Tal, Chartal & Dhammar.
2. Mat Tal- One Peshkar, Two Kayada, five Paltas with Tihaai, two Tukdas, two Tihaais, One Farmaishi Paran, One Chakardar Paran, Two Rellas & Gat.
3. Chaar Tal- Two Tukdas, Two Tihaais, Two Paran, Two Rellas.
4. Dhammar- Two Tukdas, Two Tihaais, Two Paran, Two Rella.
5. Ability to play Nagma on Harmonium in Mat Tal, Chartal & Dhammar.
6. Ability to play Theka of Vilambit Ektal and Vilambit Tilwara.
7. Practice of playing the above Taals with Vocal and Instrumental performance.
8. Tuning of Tabla.
9. Ability to sing a Shabad/Bhajan with Harmonium.

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 Muni Misher, Bhartiya Gayan Peeth Parkashan, 1973.
4. Hamare Sangeet Rattan: Sangeet Karyalaya Hathras, 1978.
5. Tal Martand: Sataya Narayan Vishesh Sangeet Karyalaya Hathras, 1994.
6. Tal Parichaie Part I-IV Garish Chandar Srivastav Sangeet Karyalaya Hathras.
7. Tal Parkash Bhagwat Sharan Sharma Sangeet Karyalaya Hathras.
8. Sangeet Mein Tal Vadon Ki Upyogita Chitragupta Radha Publication New Delhi 1992.

**SEMESTER–VI****COMPUTER SCIENCE****INFORMATION TECHNOLOGY  
(THEORY)**

**Time: 3 Hours**  
**Periods/Week: 4**

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

**Instructions for the Paper Setters:-**

- Note:** (i) In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be equal marks.  
(ii) The maximum marks for the paper is 75.  
(iii) As per as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

**UNIT–I****Data & Network Communication:**

Communication media: Twisted pair, Coaxial, Fibre optics, Wireless(Line of Sight & Satellite), Network Advantages, Types & Topologies, Communication using Network protocol/Network Interface card(NP/NIC), Transmission & Communication protocol/protocol(TCP/IP), Moderns, Types of Operating systems: Multiuser, Multitasking & Multiprogramming and their examples.

**UNIT–II****Information Systems:**

Introduction to IT & its components, What is Information systems, Computer based information systems, Management Information System, Decision Support System, Expert System, Functional Information System, Open Information System, Transaction Processing System, System Development Process & System development Tools. Internet basics, Its uses and Applications.

**Fundamentals of Networking O.S.:**

Introduction to components of various Networking O.S., Case Study of Network Operating System Windows NT.

### **UNIT–III**

#### **Fundamental of Client Server:**

Basics of Client Server model and its applications. Designing a Client Server model by Creating Database Server and networking O.S. Server.

#### **Careers in Computers:**

Role of Programmers, Program analysis, System Analyst, System Administrators, System Managers, System Integrators, DTP Manager & Administrators, MIS Director.

#### **References:**

1. Peter Norton, Introduction to Computers, Glencoe, Macmillan/McGraw Hill. Kroenke, Business Computer System, McGraw Hill.
2. Patric, G.Mckeown, Living with the Computers, 2nd edition, HBT Publishers, USA.
3. Hussain & Hussain, Computer Technology, Applications & Social Implications, PHI.

**SEMESTER–VI**

**COMPUTER SCIENCE**

**INFORMATION TECHNOLOGY  
(PRACTICAL)**

**Marks: 25**

**Periods/Week: 2**

**Note: Practical Marks will include the appropriate weightage for proper maintainance of lab record.**



**SEMESTER–VI****INFORMATION TECHNOLOGY (VOCATIONAL)****SOFTWARE ENGINEERING  
(THEORY)****Time: 3 Hours****Max. Marks: 100****Theory Marks: 75****Practical Marks: 25****Instructions for the Paper Setters:–**

- (i) In theory eight questions are to be set giving the weightage to all the portions. The candidates are required to attempt any five. All questions are to be equal marks.
- (ii) The maximum marks for the paper will be 75.
- (iii) As per as possible except in the Computer language papers no programme may be asked in theory, papers. Emphasis should be on algorithm development.

**UNIT – I**

System Analysis, Data Modeling, Process Modeling, Network Modeling, Object Modeling, System Design and Construction.

**UNIT – II**

Application architecture and process design, Database design, Input design and Prototyping output design and prototyping.

**UNIT – III**

User interface design and prototyping, Software design, Object– Oriented design, System implementation and support, S/W testing.

**References:**

1. System Analysis and Design Methods by Jeffrey L. Whitten, 7<sup>th</sup> Edition, Tata McGraw–Hill.
2. Pankaj Jalote, “An Integrated Approach to Software Engineering”, 3rd Edition.

105

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–VI) (Session 2019-20)  
(Faculty of Engineering & Technology)

**SEMESTER–VI**

**INFORMATION TECHNOLOGY (VOCATIONAL) (VOCATIONAL)**

**SOFTWARE ENGINEERING**

**(PRACTICAL)**

**Marks: 25**

Practical on the basis of Software Engineering

**SEMESTER–VI****COMPUTER MAINTENANCE (VOCATIONAL)****(PROJECT)****Max. Marks: 100****General Instructions:**

1. A software module based on the work done in the entire course is to be developed.
2. The soft copy of the module shall be submitted to the College/Institute till April 30.
3. The software module shall be developed in groups, consisting of at most two students in a group.
4. The respective college shall depute guide(s)/supervisor(s) under whose supervision the software module shall be developed. The guide/supervisor shall clarify that the work done is original & authenticated. The certificate found to be incorrect at any stage shall attract the proceedings against all the stakeholders, as per the University rules.
5. The evaluation of the module shall be done as per the common ordinance of UG/PG w.e.f. 2012–2013 under semester system.

**SEMESTER–VI****COMPUTER APPLICATION (VOCATIONAL)****BUSINESS DATA PROCESSING  
(THEORY)**

**Time: 3 Hrs.**  
**Periods/Week: 4**

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

**Instructions for the Paper Setters:–**

- Note:** (i) Eight questions are required to be set giving the weightage to all the portions. The candidates will be required to attempt any five questions. All questions will carry equal marks.
- (ii) The maximum marks for the paper will be 75.
- (iii) As per as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

**UNIT–I**

1. Introduction to Data Processing.
2. Need of Computers in Business.
3. Characteristics of Business Organization and Use of computers in various work areas of business.
  - a) Payroll System
  - b) Inventory Control
  - c) Online Reservation
  - d) Computer in Banks
  - e) Computer Application in Educational Institutions
4. Concept of Data Processing Methods with Examples.
  - a) Batch Processing
  - b) Online Systems
  - c) Time Sharing
  - d) Real Time Systems
  - e) Distributed Processing

### UNIT–II

5. File Organization.
  - a) Types of Files (Master, Transaction, Work, Backup, Audit Files)
  - b) File Organization (Serial, Sequential, Indexed Sequential, Direct Access Files).
6. Spreadsheets (Data Analysis Package)
  - a) Introduction to Spreadsheets
  - b) Lotus 123/MS Excel
  - c) Creating a simple worksheet
  - d) Computations in a Worksheet
  - e) Printing the Worksheet
  - f) Graphs
  - g) What if Analysis (Data sort, fill, query, filter)
7. Iterative controls
  - \* Simple Loops (Loop–end loop)
  - \* Numeric FOR Loops
  - \* While Loops

### UNIT–III

8. Intro and Advantages of procedures and functions with examples.
9. Intro to database Triggers
  - \* Creation a database trigger with example
  - \* Enable and disable of database trigger
  - \* Drop a database trigger
10. Developer 2000
  - \* Reports 6.0
  - \* Forms 6.0
11. Utilities
  - \* Export/Import
  - \* SQL
  - \* Loader

109

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–VI) (Session 2019-20)  
(Faculty of Engineering & Technology)

**SEMESTER–VI**

**COMPUTER APPLICATION (VOCATIONAL)**

**BUSINESS DATA PROCESSING**

**(PRACTICAL)**

**Periods/Week: 2**

**Marks: 25**

## SEMESTER–VI

### INFORMATION TECHNOLOGY SPECILIZATION SOFTWARE DEVELOPMENT (VOCATIONAL)

#### Paper – I: C++ (OOP Language)

Time: 3 Hours

M. Marks: 75

**Note 1: In theory eight questions are to be set in all. The candidates are required to attempt five of them. All questions are to be of equal marks.**

**2. The students can use only Non–Programmable & Non–Storage Type Calculators.**

#### UNIT-I

**Getting Started** Introduction, A brief history of C++, Variable, constant, Expression, Statements, Comments and keywords of C++

**Operator:** Arithmetic, Relational, Logical, Assignment, Increment/Decrement, Conditional, Precedence of Operators, Data type, Type Conversion, library function.

**Input / Output Statements:** Inputting using in and outputting using cout statements, Preprocessor directives, Basic program construction.

#### **Decision Making and Looping Statement**

If Statement, If..else statement, nesting of if statement, switch statement, conditional operator statement. While loop, do loop, for loop, nesting of loops, break and continue statement, go to statement.

#### UNIT-II

**Arrays:** Defining an array, array type, array elements, Accessing and averaging array elements, initializing array. String handling, array of strings.

**Functions:** What is a function? Declaring and defining function. Local, global variables, execution of function, Passing argument to function, Return values. Reference arguments. Overloading functions. Inline function and default parameter.

#### UNIT-III

**Object Oriented Programming:** Objects & Classes. Constructor & Destructor. Operator overloading. Overloading unary operators. Overloading binary operators. Data conversion. Pitfalls operator overloading and conversion.

**Inheritance:** Derived class and Base Class. Derived Class Constructors. Overriding member functions. Public and Private inheritance. Types of Inheritance.

**Structures** A simple structure, specifying the structure, defining a structure variable. Accessing Structure member. Other structure features. Structure within structure. Structure and classes. Arrays of structure.

#### **Books:**

1. C++ & Graphics by Vijay Mukhi's
2. Turbo C++ by Robert Lafore.
3. Mastering C++.
4. C++ Programming Language by Schaum's outline series.

**SEMESTER-VI**

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

**Paper-I: Lab – I: Programming in C++**

**Time: 3 Hrs.**

**Max. Marks: 25**

Practical based on Programming in C++



## SEMESTER–VI

### AUTOMOBILE MAINTENANCE (VOCATIONAL) (THEORY)

**Time: 3 hours**

**Max. Marks: 60**

**Periods per week Theory 6**

**Section–A:** It will consist of 5 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks i.e. (2 marks); total weightage of the section being 10 Marks.

**Section–B:** It will consist of short answer questions with answer to each question upto 2 pages in length. Eight questions will be set by the examiner and 5 will be attempted by the candidates. Each question will carry 4 marks; total weightage of the section being 20 marks.

**Section–C:** It will consist of essay type question with answer to each question upto 5 pages in length. Four questions will be set by the examiner & candidates will be required to attempt two. Each question will carry 15 marks; total weightage of the section being 30 marks.

#### UNIT–I

**Brake System and Brake Services:** Introduction, Purpose of brakes, Requirement of brakes, Brake efficiency, Factor effecting to brakes, Braking forces, Classification of Brakes, Braking force, Classification of Brakes, Braking systems, Method of actuating brakes, Construction of actuating brakes, Construction of disk type brakes, Mechanical brakes, Coiling mechanical break, Hydraulic brakes, Bleeding of brakes, Hill holder, Electric brakes, Brake troubleshooting. Basic concepts of Anti lock braking system.

#### UNIT–II

**Tyre and Wheels Construction and Service:** Wheel assembly, Wheels, Rims, Tyres, Types of tyres, Construction of a tyre, Tyre plies and construction, Tyre sizes, Tubes, Tyre inflation pressure, Schrader valve, Tyre inspection, Desirable tyre properties, Tyre chains, Care and maintance of rims, Tyres and tubes, Tyre rotation, Repair of inner tube, Repair of tyres, Wheels and tyres troubleshooting.

#### UNIT–III

**Tune up and Workshop Setup:** Introduction, Tune up procedure of Engine, Fault finding and troubleshooting in petrol engine and diesel engine, to set up and Automobile workshop and service station, Ways to sell better service.

**SEMESTER–VI****AUTOMOBILE MAINTENANCE (VOCATIONAL)****LAB – II  
(PRACTICAL)****Time: 3 Hours****Total Marks: 40****Periods per week: Practical: 4****Practicals:**

1. Front wheel alignment.
2. Foot Brake Leather opening and fitting.
3. Brake Adjustment.
4. Tie rod opening and fitting.

**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).
3. Automobile Mechanics (English Edition) Written by William H. Crousa, Donald L. Anglin.

**SEMESTER–VI****REFRIGERATION & AIR CONDITIONING (VOCATIONAL)  
PAPER–K (THEORY)****Time: 3 Hours****Marks: 30****Instructions for the Paper Setters:**

**Section–A:** It will consist of 5 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry half mark i.e. (1 mark); total weightage of the section being 5 Marks.

**Section–B:** It will consist of short answer questions with answer to each question upto 1 page in length. Eight questions will be set by the examiner and 5 will be attempted by the candidates. Each question will carry 2 marks; total weightage of the section being 10 marks.

**Section–C:** It will consist of essay type question with answer to each question upto 5 pages in length. Four questions will be set by the examiner & candidates will be required to attempt two. Each question will carry seven and half marks; total weightage of the section being 15 marks.

**UNIT–I**

**Ice Manufacture:** Introduction, Principle of Ice Production, Different Methods of Ice manufacturing, Treatment of Water for making the Ice, Brines, Freezing Tanks, Ice cans, Quality of Ice, General layout of Ice factory

**UNIT–II**

**Food Preservation:** Introduction, Factors contributing to food spoilage, Causes of Food Spoilage.

**UNIT–III**

**Methods of Food Preservation:** Freezing methods of Food preservation, Preservation of Foods with direct contact of liquid CO<sub>2</sub> Freeze Drying, Preservation of Different products, cold storage and commercial cabinets.

**SEMESTER–VI****REFRIGERATION & AIR CONDITIONING (VOCATIONAL)  
PAPER–L (THEORY)****Time: 3 Hours****Marks: 30****Instructions for the Paper Setters:**

**Section–A:** It will consist of 5 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry half mark i.e. (1 mark); total weightage of the section being 5 Marks.

**Section–B:** It will consist of short answer questions with answer to each question upto 1 page in length. Eight questions will be set by the examiner and 5 will be attempted by the candidates. Each question will carry 2 marks; total weightage of the section being 10 marks.

**Section–C:** It will consist of essay type question with answer to each question upto 5 pages in length. Four questions will be set by the examiner & candidates will be required to attempt two. Each question will carry seven and half marks; total weightage of the section being 15 marks.

**UNIT – I**

**Transport Air Conditioning:** Automobile Air–Conditioning, Railway Air conditioning, Marine Air Conditioning, Air–Crafts, Air–Conditioning

**UNIT – II**

**Commercial Applications:** Introduction, Air conditioning of houses and offices, Air conditioning of Hotels and Restaurants, Air conditioning of departmental stores, Air conditioning of Theatres and Auditorium, Air conditioning of Hospitals.

**UNIT – III**

**Industrial and Special Applications:** Introduction, Design considerations in Bus Air Conditioning, Air conditioning in textile industry, Medical applications, Engineering Applications, Air conditioning of Special Type Building, Ice Rinks.

**SEMESTER–VI****REFRIGERATION & AIR CONDITIONING (VOCATIONAL)****PRACTICAL: LAB–III****Time: 2 Hours****Total Marks: 40****Period Per week Practical: 4****List of Experiments:**

1. To study the service Ice candy plant (small unit)
2. To study the cold storage and layout the cold storage for leakage.
3. To test overload and relay in window unit
4. To find the C.O.P. of an Air conditioner.
5. To study Domestic Refrigerator

**List of Books Recommended:**

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

**SEMESTER-VI**

**RELIGIOUS STUDIES (ਧਰਮ ਅਧਿਐਨ)**  
(ਸਿੱਖ ਇਤਿਹਾਸ ਤੇ ਸੰਸਥਾਵਾਂ)

ਸਮਾਂ 3 ਘੰਟੇ  
ਲੈਕਚਰਾਂ ਦੀ ਗਿਣਤੀ:75%

ਕੁਲ ਅੰਕ:100  
ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:35

**ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ:**

ਪੇਪਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ: ਓ, ਅ, ਏ, ਸ, ਅਤੇ ਹ। ਭਾਗ ਓ, ਅ, ਏ, ਸ ਵਿਚੋਂ 2-2 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੋਵੇਗਾ ਅਤੇ ਹਰ ਇਕ ਪ੍ਰਸ਼ਨ ਦੇ 15 ਅੰਕ ਹੋਣਗੇ। ਭਾਗ ਹ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ, ਜਿਹੜੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 4-4 ਅੰਕ ਹੋਣਗੇ।

**ਪ੍ਰੀਖਿਆਰਥੀ ਲਈ ਹਦਾਇਤਾਂ:**

ਭਾਗ ਓ, ਅ, ਏ, ਸ ਵਿਚੋਂ ਕੇਵਲ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੈ ਅਤੇ ਭਾਗ ਹ ਦੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜ਼ਰੂਰੀ ਹਨ।

**ਭਾਗ (ਓ) ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਤੇ ਸਿੱਖ ਧਰਮ ਦਾ ਆਰੰਭ**

1. ਸਮਕਾਲੀਨ ਪਰਿਸਥਿਤੀਆਂ : ਧਾਰਮਿਕ, ਸਮਾਜਿਕ, ਰਾਜਨੀਤਿਕ
2. ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਦੀਆਂ ਉਦਾਸੀਆਂ
3. ਸਿੱਖ ਧਰਮ ਦਾ ਵਿਕਾਸ : ਗੁਰੂ ਅੰਗਦ ਦੇਵ ਜੀ ਤੋਂ ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਤੱਕ

**ਭਾਗ (ਅ) ਸਿੱਖ ਧਰਮ ਦਾ ਵਿਕਾਸ : ਗੁਰੂ ਹਰਿਗੋਬਿੰਦ ਤੋਂ ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਤੱਕ**

1. ਗੁਰੂ ਹਰਿਗੋਬਿੰਦ ਜੀ ਤੋਂ ਗੁਰੂ ਹਰਿਕ੍ਰਿਸ਼ਨ ਤੱਕ
2. ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ: ਸ਼ਹਾਦਤ ਦਾ ਮਹੱਤਵ ਤੇ ਇਤਿਹਾਸਕ ਕਾਰਣ
3. ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ: ਖਾਲਸਾ ਸਿਰਜਣਾ

**ਭਾਗ (ਏ) ਬੁਨਿਆਦੀ ਸੰਸਥਾਵਾਂ**

1. ਗੁਰਦੁਆਰਾ, ਸੰਗਤ ਤੇ ਪੰਗਤ
2. ਮੰਜੀ ਪ੍ਰਥਾ ਤੇ ਮਸੰਦ ਪ੍ਰਥਾ
3. ਦਸਵੰਧ

**ਭਾਗ (ਸ) ਪ੍ਰਮੁੱਖ ਲਹਿਰਾਂ**

1. ਨਾਮਧਾਰੀ ਲਹਿਰ
2. ਸਿੰਘ ਸਭਾ ਲਹਿਰ
3. ਗੁਰਦੁਆਰਾ ਸੁਧਾਰ ਲਹਿਰ

**ਭਾਗ (ਹ) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ**

**ਸੁਝਾਈਆਂ ਪੁਸਤਕਾਂ ਦੀ ਸੂਚੀ:**

**English:**

1. Ganda Singh (Ed.), *Punjab: Past and Present* (Singh Sabha Issue), Punjabi University, Patiala, 1973.
2. -----, *The Singh Sabha and Other Socio-religious Movements in the Punjab*, Punjabi University, Patiala, 1997.
3. J.N.Farquhar, *Modern Religious Movements in India*, Munshi Ram, Manohar Lal, New Delhi, 1967.

**Punjabi:**

1. ਅਸ਼ੋਕ, ਸ਼ਮਸ਼ੇਰ ਸਿੰਘ, *ਪੰਜਾਬ ਦੀਆਂ ਲਹਿਰਾਂ*, ਅਸ਼ੋਕ ਪੁਸਤਕਮਾਲਾ, ਪਟਿਆਲਾ, 1974.
2. ਗੰਡਾ ਸਿੰਘ (ਸੰਪਾ.) *ਪੰਜਾਬ (ਭਾਈ ਜੋਧ ਸਿੰਘ ਅਭਿਨੰਦਨ ਗ੍ਰੰਥ) ਪੰਜਾਬੀ ਸਾਹਿਤ ਅਕਾਦਮੀ*, ਲੁਧਿਆਣਾ, 1962.
3. -----, *ਤੇਜਾ ਸਿੰਘ, ਸਿੱਖ ਇਤਿਹਾਸ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2013.
4. ਭਗਤ ਸਿੰਘ, *ਪੰਜਾਬ ਦਾ ਇਤਿਹਾਸ*, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ, ਚੰਡੀਗੜ੍ਹ, 1983.
5. ਭਾਟੀਆ, ਨਰਿੰਦਰ ਕੌਰ, ਜਸਵਿੰਦਰ ਕੌਰ ਢਿੱਲੋਂ (ਸੰਪਾ.), *ਪ੍ਰਮੁੱਖ ਸਿੱਖ ਸੰਸਥਾਵਾਂ*, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2005.
6. ਜਗਜੀਤ ਸਿੰਘ, *ਸਿੰਘ ਸਭਾ ਲਹਿਰ*, ਲਾਹੌਰ ਬੁਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ, 1974.
7. ਡਾ.ਮਨਵਿੰਦਰ ਸਿੰਘ, *ਗੁਰਬਿਲਾਸ ਪਾਤਿਸਾਹੀ ਦਸਮੀ (ਕ੍ਰਿਤ ਭਾਈ ਸੁਖਾ ਸਿੰਘ, ਸੰਪਾਦਨ ਤੇ ਪਾਠ-ਮੁਲਕ ਅਧਿਐਨ)*, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2016.
8. ਡਾ.ਮਨਵਿੰਦਰ ਸਿੰਘ, (ਸੰਪਾ.) *ਗੁਰਰਤਨਾਵਲੀ ਕ੍ਰਿਤ ਬਾਬਾ ਤੋਲਾ ਸਿੰਘ ਭੱਲਾ*, ਲਾਕਟ ਪ੍ਰਿੰਟਰਜ਼, ਅੰਮ੍ਰਿਤਸਰ, 1995

**SEMESTER–VI**

**PHILOSOPHY**

**OPT. (I) INDIAN METAPHYSICS AND EPISTEMOLOGY**

**Time allowed: 3 hours**

**Max. Marks: 100**

**Lectures to be delivered: 6 per week**

**Pass Marks: 35**

**Note: Instructions for the Paper Setter:-**

The question paper will consist of five sections: A, B, C, D & E. Section A, B, C & D will have two questions from each respective section of the syllabus and each question will carry 15 marks. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40 marks in all, each short answer carrying 4 marks.

**Instructions for the Candidates**

Candidates are required to attempt one question each from the section A, B, C, and D of the question paper and the entire section E.

**Section–A**

1. Introduction and Salient Features of Indian Philosophy.
2. A Brief Introduction of Vaidik Darsan and Avidik Darsan (Orthodox and Heterodox Systems of Indian Philosophy).
3. Concepts of Atman and Brahman in Upanishads.

**Section–B**

4. Carvaka Darsan: Materialism.
5. Samkhya Darsan: Nature and Characteristics of Purusa & Prakirti, Process of Evolution and dissolution.
6. Shankaracharya on Maya and Avidya.

**Section–C**

7. Nyaya Theory of Knowledge: Four Pramanas.
8. Buddhism: Theory of Causation (Pratityasamutpada).
9. Vaisesika Darsan: Six Categories



### SEMESTER–VI

#### Section–D

10. Jainism: Anekantvada, Syadvad.
11. Sikhism: Akal Purakh and Jagat Rachna.
12. Yoga Darsan: Nature of Citta and Samadhi

#### Section–E

Ten short answer type questions.

#### Recommended Readings:

##### English Books

1. Abhedananda Swami, *The Yoga Psychology*, Ramakrishna Vedantaz, Calcutta, 1967.
2. Chatterjee and Datta, *An Introduction to Indian Philosophy*, University of Calcutta, Calcutta, 1968.
3. Daljeet Singh, *Essentials of Sikhism*, Singh Brothers, Amritsar, 1994.
4. Daljeet Singh, *Sikhism, A Comparative Study of its Theology and Mysticism*, Singh Brothers, Amritsar, 2004.
5. Daya Krishna, *Indian Philosophy : A New Approach*, Sri Satguru, Delhi, 1997
6. Gopalan S., *Outlines of Jainism*, Wiley Eastern Ltd. New Delhi, 1975.
7. Heera Bhupinder, *Uniqueness of Carvaka Philosophy in Indian Traditional Thought*
8. Hiriyanna, M., *Outlines of Indian Philosophy*, Reprint, der Ausg. London Allen et Unwin, Motilal Banarsidas, Delhi, 2009.
9. H. Phillips, Stephen, *Classical Indian Metaphysics*, Motilal Banarsidas, Delhi, 1997.
10. Mohanty, J.N., *Classical Indian Philosophy*, Oxford University Press, New Delhi, 2002.
11. Sharma, C.D., *A Critical Survey of Indian Philosophy*, Motilal Banarsidas, Delhi, 1964.
12. Sher Singh, *Philosophy of Sikhism*, Sikh University Press, Lahore, 1945.
13. Singh Lal A., *Yoga Psychology; Methods and Approaches*, Varanasi
14. Talib, Gurbachan Singh (ed.), *Jainism*, Punjabi University, Patiala, 1986.

### SEMESTER–VI

#### Punjabi Books

1. ਹਿਰਿਆਨਾ, ਐਮ. (ਅਨੁ. ਪ੍ਰਭਕੀਰਤਨ ਸਿੰਘ), *ਭਾਰਤੀ ਦਰਸ਼ਨ ਦੀ ਰੂਪ-ਰੇਖਾ*, ਯੂਨੀਵਰਸਿਟੀ ਬੁਕਸ, ਚੰਡੀਗੜ੍ਹ, 2014.
2. ਗੁਪਤਾ, ਸ਼ਾਂਤੀ ਨਾਥ, *ਭਾਰਤੀ ਦਰਸ਼ਨ*, ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ, ਚੰਡੀਗੜ੍ਹ, 1974.
3. ਨਿਰਾਕਾਰੀ, ਆਰ.ਡੀ., *ਭਾਰਤੀ ਦਰਸ਼ਨ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1994.
4. ਮਨਮੋਹਨ, *ਦੈਰੀਦੀਅਨ ਵਿਖੰਡਨ ਤੇ ਭਾਰਤੀ ਗਿਆਨ ਸ਼ਾਸਤਰ*, ਪੰਜਾਬੀ ਸਭਿਆਚਾਰਕ ਕੇਂਦਰ, ਦਿੱਲੀ।

#### Hindi Books

1. ਸਿਨਹਾ, ਹਰਿੰਦਰ ਪ੍ਰਸਾਦ, *ਭਾਰਤੀ ਦਰਸ਼ਨ ਕੀ ਰੂਪਰੇਖਾ*, ਮੋਤੀਲਾਲ ਬਨਾਰਸੀ ਦਾਸ, 1963.
2. ਮਿਸ਼ਰ, ਉਮੇਸ਼ (ਡਾ.), *ਭਾਰਤੀ ਦਰਸ਼ਨ*, ਉੱਤਰ ਪ੍ਰਦੇਸ਼, ਹਿੰਦੀ ਸੰਸਥਾਨ, ਲਖਨਊ, 2003.
3. ਰਾਧਾ ਕ੍ਰਿਸ਼ਨਨ, *ਭਾਰਤੀ ਦਰਸ਼ਨ*, ਰਾਜਪਾਲ ਐਂਡ ਸੰਨਜ਼, ਦਿੱਲੀ, 1973.

**SEMESTER–VI**

**PHILOSOPHY**

**OPT. (II) AESTHETICS**

**Time Allowed 3 Hours**

**Max. Marks: 100**

**Lectures to be delivered: 6 per week**

**Pass Marks 35**

**Note: Instruction for the Paper Setter:-**

The question paper will consist of five sections : A, B, C, D & E. Section A, B, C, will have two questions from each respective section of the Syllabus and each question will carry 15 marks. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and carry 40 marks in all, each short answer type question carrying 4 marks.

**Instructions for the Candidates**

Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire Section E.

**Section–A**

1. Aesthetics: Nature, Concern and Problems.
2. Form and Content in work of Art
3. Concept of Beauty and Sublime (Kant).

**Section–B**

4. Rasa Siddhanta in Indian Aesthetics.
5. Nature and issues of Natya, Characteristics of Aesthetic Activity.
6. Aesthetics and Creativity in GurSikh Matt

**Section–C**

7. Architecture
8. Sculpture
9. Painting and Drawing

**Section–D**

10. Music
11. Poetry
12. Theatre

**Section–E**

**Ten Short answer type questions.**

## SEMESTER–VI

### Recommended Readings

#### English Books

1. Bosanque, Bernard, *The History of Aesthetics*, George Allen & Unwin Ltd., London, 1967.
2. Chatterji, D.C., *Fundamental Questions in Aesthetics*, Indian Institute of Advanced Studies, Shimla. 1968.
3. Ghoshal S.N., *Elements of Indian Aesthetics*, Chaukhambha Orientalia, Varanasi, 1978.
4. Graham Gordan, *Philosophy of the Arts; an Introduction to Aesthetics*, London, 1997.
5. Jhanji, Rekha, *Aesthetic Communication*, New Delhi, M. Manohar Lal, 1985.
6. Pandit Sneh, *An Approach to the Indian Theory of Art and Aesthetics*, Sterling Publishers, PVT, New Delhi, 1977.
7. Sharma, H.L., *Indian Aesthetic and Aesthetics Perspective*, Mansi Prakashan, 1995.
8. Titus, Harold H., *Living Issues in Philosophy*, Eurasia, New Delhi, 1968.

#### Punjabi Books

1. ਗੋਪਾਲ ਸਿੰਘ, *ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਦੀ ਸਾਹਿਤਕ ਵਿਸ਼ੇਸ਼ਤਾ*, ਨੈਸ਼ਨਲ ਪ੍ਰੈਸ ਆਂਡ ਇੰਡੀਆ, ਨਵੀਂ ਦਿੱਲੀ, 1987.
2. ਚਮਨ, ਸਰੋਜ, *ਸੌਂਦਰਯ ਸ਼ਾਸਤਰ*, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1997.
3. ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ, *ਭਾਰਤੀ ਕਾਵਿ-ਸ਼ਾਸਤਰ*, ਮਦਾਨ ਪਬਲੀਕੇਸ਼ਨ, ਪਟਿਆਲਾ, 2001.
4. ਬਲਜੀਤ ਕੌਰ (ਡਾ.), *ਸੁਹਜ ਸ਼ਾਸਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ*, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 1987.

#### Hindi Books

1. ਨਗੇਂਦਰ (ਡਾ.), *ਭਾਰਤੀ ਸੌਂਦਰਯ ਸ਼ਾਸਤਰ ਕੀ ਭੂਮਿਕਾ*, ਨੈਸ਼ਨਲ ਪਬਲਿਸ਼ਿੰਗ ਹਾਊਸ, ਦਿੱਲੀ, 1984.
2. ਸ਼ਰਮਾ, ਹਰਦਵਾਰੀ ਲਾਲ, *ਸੌਂਦਰਯ ਸ਼ਾਸਤਰ*, ਮਾਨਸੀ ਪ੍ਰਕਾਸ਼ਨ, ਕੈਲਾਸ਼ਪੁਰੀ, ਮੇਰਠ, 1999.

**SEMESTER–VI**

**ZOOLOGY**

**Paper Zoo–VI (Option i/ ii/ iii)**

Paper	Maximum Marks		Hours of Teaching	
	Theory Marks	Practical Marks	Theory	Practical
ZOO-VIA (Option i/ ii/ iii)	35	—	3 Hrs	—
ZOO-VIB (Option i/ ii/ iii)	35	—	3 Hrs	—
PRACTICAL–VI (RELATED TO ZOO-VIA and ZOO-VIB)	—	30	—	4½ Hrs

**Options:-**

- (i) Medical Zoology & Medical Laboratory Technology
- (ii) Economic Entomology
- (iii) Inland Fisheries (Aquaculture)

**SEMESTER–VI**

**ZOOLOGY**

**ZOO-VI A: Option-i: Medical Zoology  
(THEORY)**

**Max. Time: 3 Hrs.**

**Max Marks: 35**

**Instructions for the Paper Setters:**

1. Question paper should be set strictly as per the topics in the syllabus.
2. The question paper will comprise of two sections.
3. Section A will be compulsory and will have 7 short answer type questions (one mark each).
4. Section B will have 8 questions including two questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. All questions shall have equal marks. (7 marks each)

**UNIT-I**

1. Introduction of Parasitology (various terminologies in use).
2. Brief introduction to pathogenic microbes, viruses, Rickettsiae, spirochaetes and bacteria.
3. Brief accounts of life history, mode of infection and pathogenicity of the following with reference to man; prophylaxis and treatment:
  - a) Pathogenic protozoa: *Entamoeba*, *Trypanosoma*, *Leishmania*, *Giardia*, *Trichomonas* and *Plasmodium*.
  - b) Pathogenic helminthes: *Fasciola*, *Schistosoma*, *Echinococcus*, *Ancylostoma*, *Trichinella*, *Wuchereria*, *Dracunculus* and *Oxyuris*.

**UNIT-II**

4. Life cycle and control measures of arthropod vectors of human disease: Malaria (*Anopheles stephens*, *A. culicifaces*, Yellow fever, Dengue, Dengue haemorrhagic and fever Chicken guinea. (*Aedes aegypti* A. *Albopicuts*); Filariasis (*Culex pipien satigeans*) *Mansonia* sp. Japanes Encephalitis (*C. trinanelorhynchus*); Plague (*Stenophalide cheopis*) and Epidemic Typhus (*Pediculus spp*).
5. Epidemic diseases, such as Typhoid, Cholera, Small pox; their occurrence and eradication programs.

**UNIT-III**

6. Brief introduction to human defence mechanisms.
7. Humoral and cell mediated immune response. Physical & chemical properties of antigens. Antibody structure and function of M, G, A, E and D immunoglobulins.

**UNIT-IV**

8. Antigen and antibody interactions-Serodiagnostic assays (Precipitation, agglutination immunodiffusion, ELISA, RIA)
9. Vaccines

**Suggested Readings:**

1. Baker, F.J. and Silvertown, R.E. (1985) Introduction to Medical Laboratory Technology, (6<sup>th</sup> ed), Butterworth and Co. Ltd.
2. Chatterjee, K.D.(1995), Parasitology, Protozoology and Helminthology (12<sup>th</sup> ed).
3. Cheesborough, M.(1987), Medical Laboratory Technology for Tropical countries (2<sup>nd</sup> ed), Butterworth and Co., Ltd.
4. Garcia, L.S.(2001), Diagnostic Medical Parasitology, (4<sup>th</sup> ed), ASM Press Washington.
5. Kimball, J.W. (1986), Introduction of Immunology, MacMillan Publishing Co., New York.
6. Kuby, J.(2000), Immunology, W.H. Freeman & Co., USA.
7. Roitt, I. (1984), Essential Immunology, Blackwell Scientific Publications, Oxford.
8. Talib, V.H.(1999), Essential Laboratory Manual, Mehta Publishers, New Delhi.

**SEMESTER–VI****ZOOLOGY****ZOO-VI B: Option-i: Medical Laboratory Technology  
(THEORY)****Max. Time: 3 Hrs.****Max Marks: 35****Instructions for the Paper Setters:**

1. Question paper should be set strictly as per the topics in the syllabus.
2. The question paper will comprise of two sections.
3. Section A will be compulsory and will have 7 short answer type questions (one mark each).
4. Section B will have 8 questions including two questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. All questions shall have equal marks. (7 marks each)

**UNIT-I**

Laboratory safety rules, hazards and precautions during sample collection and laboratory investigations.

Laboratory Techniques: Colorimetry, Microscopy, Autoclaving, Centrifugation and Spectrophotometry

**UNIT-II**

Collection, transportation and preservation of different clinical samples.

Haematology, collection of blood (venous and capillary), anticoagulants (merits and demerits), Romanowsky's stains, total RBC count, erythrocyte sedimentation rate, TLC, DLC, platelet count

**UNIT-III**

Bacteriology: sterilization (dry heat, moist heat, autoclave, filtration), disinfection, staining techniques, (gram stain, AFB stain, etc), culture media (defined and synthetic media & routine laboratory media), bacterial culture (aerobic and anerobic) and antibiotic sensitivity.

**UNIT-IV**

Histopathology: Common fixatives and staining techniques.

Biochemistry: Principal/theory and significance of estimation of urea, sugar, cholesterol, creatinine, enzymes (transaminase, phosphatase, amylase and lipase), uric acid in blood, estimation of proteins, sugar, bile salts, ketone bodies in urine and liver function test.



**Suggested Readings:**

1. Baker, F.J. and Silvertown, R.E. (1985) Introduction to Medical Laboratory Technology, (6<sup>th</sup> ed), Butlerworth and Co. Ltd.
2. Chatterjee, K.D.(1995), Parasitology, Protozoology and Helminthology (12<sup>th</sup> ed).
3. Cheesborough, M.(1987), Medical Laboratory Technology for Tropical countries (2<sup>nd</sup> ed), Butlerworth and Co., Ltd.
4. Garcia, L.S.(2001), Diagnostic Medical Parasitology, (4<sup>th</sup> ed), ASM Press Washington.
5. Kimball, J.W. (1986), Introduction of Immunology, MacMillian Publishing Co., New York.
6. Kuby, J.(2000), Immunology, W.H. Freeman & Co., USA.
7. Roitt, I. (1984), Essential Immunology, Blackwell Scientific Publications, Oxford.
8. Talib, V.H.(1999), Essential Laboratory Manual, Mehta Publishers, New Delhi.

**SEMESTER–VI****ZOOLOGY****Practical-VI (Related to (Option-i) ZOO-VI A and ZOO-VI B)****Time: 3hrs.****Max. 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 the dissections may please be avoided. In no case an animal falling under the categories of wildlife protection act 1972 should be caught or dissected. The rules of the Prevention of cruelty to Animals act 1960 should be familiar to all who are teaching the zoology courses. The guidelines on this issue are also available on the UGC website: [www.ugc.ac.in](http://www.ugc.ac.in)

1. Demonstration of safety rules in laboratory like proper handling of patients, specimens and disposal of syringes, needles etc.
2. Demonstration of the use of autoclave, centrifuge and spectrophotometer.
3. Cleaning and sterilization of glass ware, using hot air oven, autoclave etc.
4. Physico-chemical examination of urine.
5. Preparation of thick and thin blood smear.
6. Counting of WBC, RBC and DLC.
7. Study of permanent slides and specimens of parasitic protozoans, helminthes and arthropods mentioned in the theory syllabus.
8. ESR and haematocrit
9. Estimation of blood sugar, protein.

Demonstration of fixation, embedding, cutting of tissue sections, and their staining (routine haemotoxylin and eosin).

Visit to a pathology Lab and preparation of report.

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

**Guidelines for conduct of Practical Examination:**

1. Write down the principle and working of the given equipment. 5
2. Write down the procedure, precautions and perform the experiment for physico-chemical examination of urine/ haematology. 5
3. Write down the procedure for histological histochemical preparation. 5
4. Identification, pathogenicity and host of parasitic organism. 5
5. Estimation of blood sugar/urea/cholesterol/ protein in the given sample. 5
6. Viva-voce and practical file. 5

**SEMESTER–VI**  
**ZOOLOGY**  
**ZOO-VI A: Option-ii: Economic Entomology-1**  
**(THEORY)**

**Max. Time: 3 Hrs.**

**Max Marks: 35**

**Instructions for the Paper Setters:**

1. Question paper should be set strictly as per the topics in the syllabus.
2. The question paper will comprise of two sections.
3. Section A will be compulsory and will have 7 short answer type questions (one mark each).
4. Section B will have 8 questions including two questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. All questions shall have equal marks. (7 marks each)

**Section-A**

1. Systematic position, habits and nature of damage of the following pests of crops and vegetables :

**a) Sugarcane:**

1. Sugarcane leaf hopper (*Pyrilia perpusila*)
2. Sugarcane top borer (*Scirpophaga nivella*)
3. Sugarcane stem borer (*Chilotrea infuscatellus*)
4. Alongwith life cycle and control of *Pyrilia perpusilla* (Sugarcane leaf hopper).

**b) Cotton:**

1. Pink bollworm (*Pectinophora gossypiella*)
2. Red cotton bug (*Dysdercus cingulatus*)
3. Cotton grey weevil (*Mylocerus maculosus*)
4. Surface grasshopper (*Chrotogonus trachypterus*)
5. Cotton jassid (*Empoasca devastans*)
6. Along with life cycle and control of Pink boll worm (*Pectinophora gossypiella*)

**Section-B**

**c) Paddy:**

1. Rice gundhy Bug (*Leptocorisa varicorni*)
2. Rice grasshopper (*Heiroglyphus bania*)
3. Rice Hispa (*Dicladispa armigera*)
4. Along with life cycle and control of gundhy bug (*Leptocorisa varicornis*).

**d) Wheat:**

1. Wheat stem borer (*Sesamia inferens*).
2. Termites
3. Wheat Aphid and Jassid
4. Along with life cycle and control of Wheat stem borer (*Sesamia inferens*).

### Section-C

#### e) Vegetables:

1. Red pumpkin beetle (*Aulacophora foveicollis*)
2. Pumpkin fruit fly (*Dacus cucurbitae*)
3. Hadda beetle (*Epilachna vigintioctopunctata*)
4. Along with life cycle and control of pumpkin fruit fly (*Dacus cucurbitae*)

#### f) Pests of stored grains: Systematic position, habits and nature of damage of the following pests of stored grains:

1. Pulse Beetel (*Callosobruchus maculatus*)
2. Rice weevil (*Sitophilus oryzae*)
3. Khapra beetle (*Trogoderma granarium*)
4. Rust red flour beetle (*Tribolium castaneum*)
5. Rice moth (*Corcyra cephalonica*)
6. Lesser grain borer (*Rhizopertha dominica*)
7. Along with life cycle and control of Pulse Beetel (*Callosobruchus maculatus*)

### Section-D

#### 2. Useful Insects: Principles of following industries-

1. Sericulture,
2. Apiculture
3. Lac culture industries.

#### Suggested Reading Material:

1. Alford, D.V. (1999), A text book of Agricultural Entomology. Blackwell Science Publishers, Cambridge, U.K.
2. Atwal, A.S. and Dhaliwal, G.S. (1997), Agricultural pest of South Asia and their management, Kalyani Publishers, New Delhi.
3. Dhaliwal, G.S. and Arora, R. (1996), Principles of insect management, Globe offset Press, New Delhi.
4. Hill, D.S. (1993), Agricultural insect pests of the Tropics and their control (2nd Ed), Cambridge University Press, Cambridge, New York.

**SEMESTER–VI**

**ZOOLOGY**

**ZOO-VI B: Option-ii: Economic Entomology-II  
(THEORY)**

**Max. Time: 3 Hrs.**

**Max Marks: 35**

**Instructions for the Paper Setters:**

1. Question paper should be set strictly as per the topics in the syllabus.
2. The question paper will comprise of two sections.
3. Section A will be compulsory and will have 7 short answer type questions (one mark each).
4. Section B will have 8 questions including two questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. All questions shall have equal marks. (7 marks each)

**Section-A**

- I. Systematic position, disease caused and control of the following pests of Medical and Veterinary importance:
  1. Mosquitoes
  2. Sand fly (*Phlebotomus minutus*)
  4. House fly (*Musca domestica*)
  5. Horse fly (*Tabanus striatus*)
  6. Blow fly (*Calliphora erythrocephala*)
  7. Warble fly (*Hypoderma lineatum*)
  8. Fleas

**Section-B**

- II. Systematic position, disease caused and control of the following pests of Medical and Veterinary importance
  1. Lice Poultry louse (*Menopon gallinae*)
  2. Sucking louse (*Haematopinus surystrernus*)
- III. Mouth parts of:
  - Red cotton bug
  - Grasshopper
  - Cockroach
  - Mosquito
  - Honey bee

### Section-C

- IV. Biological control of insect pests.  
Principles and history  
Modern status
- V. Recent methods of pest suppression;  
Sterile insect release methods  
Behavioral control involving the use of pheromones  
Integrated pest control.

### Section-D

- VI. Chemical Control:  
History  
Principle of chemical control  
Categories of pesticides  
Important pesticides of each category  
Insect repellents  
Attractants.

### Suggested Reading Material:

1. Alford, D.V. (1999), A text book of Agricultural Entomology. Blackwell Science Publishers, Cambridge, U.K.
2. Atwal, A.S. and Dhaliwal, G.S. (1997), Agricultural pest of South Asia and their management, Kalyani Publishers, New Delhi.
3. Dhaliwal, G.S. and Arora, R. (1996), Principles of insect management, Globe offset Press, New Delhi.
4. Hill, D.S. (1993), Agricultural insect pests of the Tropics and their control, (2nd Ed), Cambridge University Press, Cambridge, New York.

**SEMESTER–VI****ZOOLOGY****Practical–VI (Related to (Option-ii) ZOO-VI A and ZOO-VI B)****Time: 3 Hrs.****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 the dissections may please be avoided. In no case an animal falling under the categories of wildlife protection act 1972 should be caught or dissected. The rules of the Prevention of cruelty to Animals act 1960 should be familiar to all who are teaching the zoology courses. The guidelines on this issue are also available on the UGC website: [www.ugc.ac.in](http://www.ugc.ac.in)
1. Feeding Apparatus: Mouth parts of honey bee, butterfly and red cotton bug by preparing permanent mounts.
2. A study of different types of larvae and pupae of insects.
3. External morphology and identification marks of the pests *Pyrilla perpusilla* (Sugarcane leaf hopper), *Pectinophora gossypiella* (Pink bollworm), *Leptocoris varicornis* (Gunbdhy bug) *Heiroglyphus banian* (Paddy grass hopper), *Dacus cucurbitae* (Pumpkin fruit fly).
4. External morphology and identification marks of the following stored grain pests: *Sitophilus oryzae* (Rice Weevil), *Tribolium castaneum* (Rust red flour beetle), *Rhizopertha dominica* (Lesser grain borer/susri), *Trogoderma granarium* (Khapra beetle), *Callosobruchus maculatus* (Pulse beetle/Dhora).
5. External morphology and identification marks of the following insects of Medical/Veterinary importance–Mosquitoes (*Culex*, *Anopheles* and *Aedes*), house fly, blow fly, warble fly and horse fly.
6. A study of life stages of silkworm and honeybees.
7. To demonstrate different techniques and equipments for collection, storage and preservation of insects.
8. Structure and working of common sprayers. Hand compression sprayer, Knap sack sprayer.
9. Visit to apiary and godowns for study of infestation.
10. Assignment on local insect fauna.



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

**Guidelines for conduct of Practical Examination:**

- |  |    |
|--|----|
| 1. Identify of given spots, give two points for identification.        | 10 |
| 2. Draw & write a note on the life cycle of given specimen.            | 5  |
| 3. Identify the instrument and write down its working and application. | 5  |
| 4. Project report on apiary/godowns/grainary.                          | 5  |
| 5. Viva-voce and practical file.                                       | 5  |

**SEMESTER–VI**

**ZOOLOGY**

**ZOO-VI A: Option-iii: Inland Fisheries-I  
(THEORY)**

**Max. Time: 3 Hrs.**

**Max Marks: 35**

**Instructions for the Paper Setters:**

1. Question paper should be set strictly as per the topics in the syllabus.
2. The question paper will comprise of two sections.
3. Section A will be compulsory and will have 7 short answer type questions (one mark each).
4. Section B will have 8 questions including two questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. All questions shall have equal marks. (7 marks each)

**Section-A**

History of inland fisheries in India.

Morphology of a typical fish (carp, cat-fish, freshwater eel, perch).

Structure of mouth of different fishes in relation to feeding habits.

**Section-B**

Identification and classification of important fishes of Punjab, Haryana and Himachal Pradesh.  
Bionomics of *Labeo rohita*, *Cirrhinus mrigala* and *Wallago attu*.

**Section-C**

Exotic fishes: History, their introduction, morphology, their role in fish culture, impact on native fish fauna.

Induced Breeding: History, Technique, Chemicals involved in induced breeding and Impact on fish culture.

**Section-D**

Pond culture: Construction of pond, Types of pond, Fertilization of pond and Maintenance of pond.

Aquatic weeds and their control- Both biological and chemical

**Suggested Readings:**

1. Aggarwal S.C. & Johal M.S., Fishery Development, Narendra Publishing House, Delhi.
2. Jayaram, K.C. (1981), the freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka-A Hand Book of Zoological Survey of India, Kolkatta.
3. Jhingran V.G. (1991), Fish and Fisheries of India, Hindustan Publishing Corporation of India, Delhi.

4. Johal M.S. & Tandon K.K. (1979,1980), Monograph on the Fishes of reorganized Punjab, (Vol. I & II), Punjab.
5. Johal M.S. & Tandon K.K.(1981), Fisheries of Punjab, Res. Bull, Panjab University, Vol. 32, pp. 143-154.
6. Legler Karl F(1962), Freshwater Fishery Biology, Wm. C-Brown Co. Dublingus IOWA, USA.
7. Munshi, J.S.D and Datta, H.M. (1996), Fish Morphology- Horizons of New Research, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
8. Rath R.K. (1993), Freshwater Aquaculture, Scientific Publishers, Jodhpur.
9. Tandon K.K. and Johal M.S.(1996), Age and Growth of freshwater fishes in India, Narendra Publishing House, New Delhi.

**SEMESTER–VI****ZOOLOGY****ZOO-VI B: Option-iii: Inland Fisheries-II  
(THEORY)****Max. Time: 3 Hrs.****Max Marks: 35****Instructions for the Paper Setters:**

1. Question paper should be set strictly as per the topics in the syllabus.
2. The question paper will comprise of two sections.
3. Section A will be compulsory and will have 7 short answer type questions (one mark each).
4. Section B will have 8 questions including two questions from each unit. Candidates shall be required to attempt 4 questions, one from each unit. All questions shall have equal marks. (7 marks each)

**Section-A**

Riverine fisheries of river Sutlej and Beas.  
Reservoir Fisheries: Gobindsagar, Pong Dam

**Section-B**

Culture Systems: Conventional, Extensive, Intensive, Monoculture and Polyculture.  
Integration of fish farming with Duckry, poultry, piggery and dairy.  
Sewage fed fisheries.

**Section-C**

Cold water fisheries: Mhaseer fisheries and Trout fisheries.  
Fish Disease and their control: Viral, Bacterial, Fungal, Helminths, Crustacean.  
Disease due to unhygienic conditions during transportation.

**Section-D**

Fish by-products.  
Marketing of Fish: Fresh Water fish, Preservation of fish.

**Suggested Readings:**

1. Aggarwal S.C. & Johal M.S., Fishery Development, Narendra Publishing House, Delhi.
2. Jayaram, K.C. (1981), the freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka-A Hand Book of Zoological Survey of India, Kolkatta.
3. Jhingran V.G. (1991), Fish and Fisheries of India, Hindustan Publishing Corporation of India, Delhi.

4. Johal M.S. & Tandon K.K. (1979, 1980), Monograph on the Fishes of reorganized Punjab, (Vol. I & II), Punjab.
5. Johal M.S. & Tandon K.K.(1981), Fisheries of Punjab, Res. Bull, Panjab University, Vol. 32, pp. 143-154.
6. Legler Karl F(1962), Freshwater Fishery Biology, Wm. C-Brown Co. Dublingus IOWA, USA.
7. Munshi, J.S.D and Datta, H.M. (1996), Fish Morphology- Horizons of New Research, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
8. Rath R.K. (1993), Freshwater Aquaculture, Scientific Publishers, Jodhpur.
9. Tandon K.K. and Johal M.S.(1996), Age and Growth of freshwater fishes in India, Narendra Publishing House, New Delhi.

## SEMESTER–VI

### ZOOLOGY

#### Practical–VI (Related to (Option-III) ZOO-VI A and ZOO-VI 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 the dissections may please be avoided. In no case an animal falling under the categories of wildlife protection act 1972 should be caught or dissected. The rules of the Prevention of cruelty to Animals act 1960 should be familiar to all who are teaching the zoology courses. The guidelines on this issue are also available on the UGC website: [www.ugc.ac.in](http://www.ugc.ac.in)
1. Morphology of a Carp, Cat fish and Perch.
  2. Morphometric and meristic characters of typical fish.
  3. Identification of the following fishes using key : *Notopterus* spp.; *Labeo rohitta*, *L. bata*, *Cirrhinus mrigala*, *Catla catla*, *Puntius sarana*, *Tor putitora*, *Schizothorex*, *Aorichthys seenghala*, *Wallago attu*, *Callichrous padda*, *Bagarius bagarius*, *Heterpneustus fossilis*, *Channa marulius*, *C. Striatus*, *Xenetondon cancila*, *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Colisa fasciatu* and *Mastacembelus armatus*.  
For the identification of these fishes, the candidate can use already prepared keys or they can prepare their own keys.
  4. Determination of food and feeding habits of locally available fishes on the basis of stomach analysis adopting the following methods :
    - a) Frequency occurrence method
    - b) Feeding intensity
    - c) Point method
  5. Determination of maturity stages (both male and female) of any commercial fish (Preserved specimens).
  6. Preparation of permanent slides of phytoplanktons and zooplanktons which constitute the food of commercial fishes. Their identification and study of important characters.
  7. Identification of aquatic weeds of a fish pond.

8. Estimation of following chemical parameters of pond water :
  1. Temperature
  2. pH
  3. Dissolved oxygen
  4. Phosphates
  5. Total Dissolved solids
  6. Nitrates
  7. Hardness
  8. Examination of diseased fishes
  
9. Visit of various fish ponds and fish market.

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

**Guidelines for conduct of Practical Examination:**

- |  |   |
|--|---|
| 1. Give salient features of the given fish/ Identification of Fish using keys. | 6 |
| 2. Estimation of physico chemical parameters of pond water.                    | 6 |
| 3. Identification of Zoo/ Phytoplanktons and their important characteristics.  | 5 |
| 4. Write morphometric/ meristic characters of a fish species.                  | 4 |
| 5. Project report.   | 4 |
| 6. Viva-voce and practical file  | 5 |

**SEMESTER–VI**  
**BOTANY**  
**Paper- VIA: ECOLOGY**  
**(THEORY)**

**Time: 3 Hrs.**

**Theory Lectures: 3 Hours/Week Max. Marks: 35**

**Instructions for the Paper Setters:**

There will be a total of nine questions. Question No. 1 will be compulsory and questions in this will be of short answer–type (3–4 lines). The remaining 8 questions will be set from equal distribution of the syllabus out of which candidates will be required to attempt 4 questions. All questions (including Q. No. 1) will have equal marks i.e. 7 each.

**Unit-I**

**Plants and Environment:** Atmosphere (gaseous compositions), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico-chemical properties), and biota.

Morphological, anatomical and physiological responses of plants to water (hydrophytes and xerophytes), temperature (thermoperiodicity and vernalization), light (photoperiodism, heliophytes and sciophytes) and salinity.

**Unit-II**

**Community Ecology:** Community characteristics, absolute and relative frequency, density and dominance, basal area and importance value index (IVI), Whittaker's classification of biodiversity, indices of alpha, beta and gamma diversity, life forms, biological spectrum, ecological succession.

**Unit-III**

**Population Ecology:** Growth curves, ecotypes, ecads.

**Ecosystem:** Structure, abiotic and biotic components, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles of carbon, nitrogen and phosphorus.

**Unit-IV**

**Biogeographical Regions of India**

**Vegetation types of India:** Forests and grasslands

**Landscape Ecology:** Definition & concept, effect of patch size and shape on biodiversity, dynamics of land use.

**Suggested Readings**

1. Kocchar, S.L. (1998). Economic Botany in Tropics, 2nd edition, Macmillan India Ltd., New Delhi.
2. Kumar, H.D. (2011). Modern Concepts of Ecology. Vikas Publishing House, New Delhi.
3. Mackenzie, A. et al., 1999. Instant Notes in Ecology. Viva Book Pvt. Ltd., New Delhi.
4. Odum, E.P. and Barrett, G.W. (2012). Fundamentals of Ecology. Cengage Learning India Pvt. Ltd., New Delhi.
5. Sambarmurthy, A.V.S.S. and Subramanyam, N.S. (1989). A Textbook of Economic Botany, Wily Eastern Ltd., New Delhi.
6. Sharma, O.P. (1996). Hill's Economic Botany (Late Dr. A.F. Hill, adapted by O.P. Sharma). Tata McGraw Hill Co. Ltd., New Delhi.
7. Sharma, P.D. (2013). Environmental Biology. Rastogi Publications, Meerut.
8. Simpson, B.B. and Conner-Ogozaly, M. (1986). Economic Botany-Plants in Our World. McGraw Hill, New York.



**BOTANY**  
**Paper- VIB: ECONOMIC BOTANY**  
**(THEORY)**

**Time: 3 Hrs.**

**Theory Lectures: 3 Hours/Week Max. Marks: 35**

**Instructions for the Paper Setters:**

There will be a total of nine questions. Question No. 1 will be compulsory and questions in this will be of short answer–type (3–4 lines). The remaining 8 questions will be set from equal distribution of the syllabus out of which candidates will be required to attempt 4 questions. All questions (including Q. No. 1) will have equal marks i.e. 7 each.

**Unit-I**

**Food Plants:** *Oryza sativa* (Rice), *Triticum aestivum* (Wheat), *Zea mays* (Maize), *Solanum tuberosum* (Potato), *Saccharum officinarum* (Sugarcane).

**Fibres:** *Gossypium hirsutum* (Cotton) and *Chorchorus capsularis* (Jute).

**Vegetable Oils:** *Arachis hypogea* (Groundnut), *Brassica campestris* (Mustard) and *Cocos nucifera* (Coconut).

**Unit-II**

**Spices :** General account of *Piper nigrum* (Black pepper), *Eugenia caryophyllum* (Cloves), *Cinnamomum verum* (Cinnamomum), *Elettaria cardamomum* (cardamom), *Zingiber officinalis* (Ginger), *Curcuma longa* (Turmeric), *Coriandrum sativum* (Coriander), *Foeniculum vulgare* (Fennel) and *Mentha arvensis* (Mint).

**Unit-III**

**Medicinal Plants:** General account of *Terminalia chebula* (Harar), *Terminalia belerica* (Bahera), *Azadirachta indica* (Neem), *Phyllanthus emblica* (Amla), *Aconitum napellus* (Aconite), *Rauwolfia serpentina* (Sarpagandha), *Atropa belladonna* (Belladonna), *Datura stramonium* (Datura), *Withania somniferum* (Ashwagandha) and *Papaver somniferum* (Poppy).

**Unit-IV**

**Beverages:** *Camellia sinensis* (Tea) and *Coffea arabica* (Coffee).

**Rubber:** Morphology of *Hevea brasiliensis* (Rubber), Processing and Uses.

General account of sources of firewood, timber and bamboos.

**Suggested Readings:**

1. Council of Scientific & Industrial Research (1986). The Useful Plants of India. Publications and Information Directorate. CSIR, New Delhi.
2. Das, K. (2010). Medicinal plants- Their importance in Pharmaceutical Sciences, Kalyani Publishers, New Delhi.
3. Kocchar, S.L. (2000). Economic Botany of the Tropics, Macmillan India Pvt. Ltd., New Delhi.
4. Prinental, D. and Hall, C.W. (Eds.) (1989). Food and Natural Resources. Academic Press, London, New York.
5. Reddy, K. et al. (2007). Advances in Medicinal plants, Universities Press, Hyderabad.
6. Sharma, O.P. (1996). Hill's Economic Botany. Tata McGraw Hill Co. Ltd., New Delhi.
7. Swaminathan, M.S. and Kocchar, S.L. (Eds) (1989). Plants and Society. Macmillan Publications Ltd., London.
8. Verma, V. (2009). Textbook of Economic Botany, ANE Books, New Delhi.

**SEMESTER–VI  
BOTANY**

**Botany Practicals–VI (Based on Papers- VIA and VIB)**

**Practical Hours: 4½ Hours/week**

**Practical Marks: 30**

**Suggested Laboratory Exercises**

1. To determine minimum number of quadrats required for reliable estimate of biomass in grasslands through species area curves.
2. To study the frequency of herbaceous species in grassland and to compare the frequency distribution with Raunkiaer's Standard Frequency Diagram.
3. To estimate Importance Value Index for grassland species on the basis of relative frequency, relative density and relative dominance in protected and grazed grassland.
4. To measure the vegetation cover of grassland through point frame method.
5. To measure the above ground plant biomass in a grassland.
6. To study the morphological anatomical features of hydrophytes (*Hydrilla, Eichhornia*)
7. Xerophytes (*Nerium, Calotropis*).
8. To determine diversity indices (richness, Simpson, Shannon-Weaver) in grazed and protected grassland.
9. To estimate bulk density and porosity of grassland and woodland soils.
10. To determine moisture content and water holding capacity of grassland and woodland soil.
11. To study the vegetation structure through profile diagram.
12. To estimate transparency, pH and temperature of different water bodies.
13. To measure dissolved oxygen content in polluted and unpolluted water samples.
14. To estimate salinity of different water samples.
15. To determine the percent leaf area injury of different leaf samples collected around polluted sites.
16. To estimate dust-holding capacity of the leaves of different plant species.
17. **Food Plants:** Study of the morphology, structure and simple microchemical tests of the foodstoring tissues rice, wheat, maize, potato and sugarcane. Microscopic examination of starch in these plants (excepting sugarcane).
18. **Fibres:** Study of cotton flowers, sectioning of the cotton ovules/developing seeds to trace the origin and development of cotton fibers. Microscopic study of cotton and test for cellulose.
19. Sectioning and staining of jute stem to show the location and development of fibers.
20. Microscopic structure. Tests for lignocelluloses.
21. **Vegetable Oils:** Study of hand sections of groundnut, mustard and coconut and staining of oil droplets by Sudan III and Sudan Black.
22. **Field Visits:** To study sources of firewood (10 plants)/timber yielding trees (10 trees)/bamboos, list to be prepared mentioning special features, collection of plant based articles of common use.
23. **Spices:** Examine black pepper, cloves, cinnamon (hand sections) and opened of cardamom and describe them briefly.
24. Preparations of an illustrated inventory of 10 medicinal plants used in indigenous systems of medicine or allopathy: Write their botanical and common names parts used and diseases/disorders for which they are prescribed.

28. **Beverages:** Section boiled coffee beans and tea leaves to study the characteristic structural features.
29. Visit to *in situ* conservation site/Botanical Garden.

**Suggested Readings (for laboratory exercises)**

1. Council of Scientific & Industrial Research. (1986). The Useful Plants of India. Publications and Information Directorate. CSIR, New Delhi.
2. Kocchar, S.L. (2000). Economic Botany of the Tropics, Macmillan India Pvt. Ltd., New Delhi.
3. Krebs, C.J. (1989). Ecological Methodology. Harper and Row, New York, USA.
4. Ludwig, J.A. and Reynolds, J.F. (1988). Statistical Ecology, Wiley, New York.
5. Moore, P.W. and Chapman, S.B. (1986). Methods in Plant Ecology, Blackwell Scientific Publications.
6. Prinental, D. and Hall, C.W. (Eds.) (1989). Food and Natural Resources. Academic Press, London, New York.
7. Sharma, O.P. (1996). Hill's Economic Botany. Tata McGraw Hill Co. Ltd., New Delhi.
8. Swaminathan, M.S. and Kocchar, S.L. (Eds.) (1989). Plants and Society. Macmillan Publications Ltd., London.

**SEMESTER–VI****MICROBIOLOGY****APPLIED MICROBIOLOGY–II  
(THEORY)****Time: 3 Hours****Max. Marks: 100  
Theory Marks: 75  
Practical Marks: 25****Instructions for the Paper Setter:**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

**UNIT–I**

1. Fermentation Process of Fermented Foods: Fermented cereal, legume and milk products. Microbiology of natural fermentation. Saurekraut, Yoghurt, soya sauce, cheese.

**UNIT–II**

2. Microbial Cell as Fermentation Products: Baker's and brewer's yeast, single cell protein, mushroom farming. Production of industrial chemicals: Acetic acid, citric acid, acetone and butanol.

**UNIT–III**

3. Production of alcoholic Beverages: Beer, wine and distilled beverages–Whisky, Brandy, Vodka, Gin production and applications of industrial enzymes: Amylases, proteases, immobilization of enzymes.

**UNIT–IV**

4. Vitamins and Amino Acids Production by Microorganisms: Riboflavin (B2) and cyanocobalamin (B12), glutamic acid. Production of antibiotics: Penicillin and streptomycin.

**Books Recommended:**

1. Read, G. 1982. Prescott and Dunn, *Industrial Microbiology*. CBS Publishers & Distributors, New Delhi.
2. Casida, L.E. 1991. *Industrial Microbiology*. Wiley Eastern Ltd., New Delhi.
3. Patel, A.H. 1984. *Industrial Microbiology*. Macmillan India Ltd., Delhi.
4. Trevan, M.D. Saffey, S., Goulding, K.H. and Stanberry, P. 1988. *Biotechnology : The Biological Principles*, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
5. Wiseman, A. 1995. *Handbook of Enzyme Biotechnology*. Ellis Harwood Ltd., London.
6. Wood, J.B.B., 1998. *Microbiology of Fermented Foods*, Volumes 1 and 2, Blackie Academic and Professional, London.
7. Power C.B. and Dagniwala, H.F. 1992. *General Microbiology*. Volume-2. Himalaya Publishing House, New Delhi.

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

1. Production of amylases and proteases in liquid medium using the selected organisms.
2. Assay of various crude enzyme preparations
  - a. Amylase
  - b. Protease.
3. Production of alcohol from molasses and cereal grains.
4. Immobilization of microbial cells and enzyme preparations by calcium alginate entrapment method.
5. Comparison of submerged and solid state fermentation techniques for amylase production.

**SEMESTER–VI****INDUSTRIAL MICROBIOLOGY  
(VOCATIONAL)****FERMENTATION TECHNOLOGY  
(THEORY)****Time: 3 Hrs.****Max. Marks: 100  
Theory Marks: 75  
Practical Marks: 25****Instructions for the Paper Setter:**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

**UNIT–I**

1. The fermentation industry, Selection and development of Industrial Microorganisms, Fermentation media, aeration, pH, temperature, Batch versus continuous culture, Immobilized enzymes & their applications.

**UNIT–II**

2. Production of some Microbial Enzymes; Proteases, Amylases, Cellulases, Microbial Production of alcoholic beverages; Beer, Wine and Whisky.

**UNIT–III**

3. Production of Organic acids; Acetic Acid, Citric Acid, Lactic Acid, Gibberellic Acid, Production of Amino Acids; Lysine, Glutamic Acid.

**UNIT–IV**

4. Downstream processing and product recovery; Production of Pharmaceuticals Antibiotics:- Tetracycline & Penicillin, Vaccines, Vitamins. Bioremediation of metals, microbial treatment of Oil Pollution and Oil recovery.

**Books Recommended:-**

1. Fermentation Technology by Whittaker, 1995.
2. Industrial Microbiology by Casida, 1989.
3. Industrial Microbiology by A.H. Patel, 2004.
4. Biotechnology: A text book of Industrial Microbiology by W. Cruger and A.Cruger, 2003.

**SEMESTER–VI**

**INDUSTRIAL MICROBIOLOGY  
(VOCATIONAL)**

**(PRACTICAL)**

**Time: 4 Hrs.**

**Marks: 25**

1. Demonstration for the cultivation of mushrooms.
2. Estimation of microbial ethanol production.
3. Isolation of actinomycetes from soil.
4. Isolation of thermophilic micro organisms from soil.
5. Immobilization of microbial cells and enzyme preparations by sodium alginate entrapment method.

**SEMESTER–VI****MICROBIAL & FOOD TECHNOLOGY****QUALITY CONTROL OF FOODS PRODUCTS  
(THEORY)****Time: 3 Hours****Max. Marks: 100  
Theory Marks: 75  
Practical Marks: 25****Instructions for the Paper Setter:**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

**UNIT–I**

Definitions of Quality, Quality control, Total Quality Management, Quality Assurance. Organization of quality control department & its relation with other departments of industry system and development of HACCP, GMP guidelines.

**UNIT–II**

Food Laws, Grades & Standards, PFA, FPO, BIS, SWMA, Export (Quality Control & Technology) act, AGMARK, ISO 9000 standards, consumer Production Act. Sugar control order, vanaspati order, Meat Food Products order.

**UNIT–III**

Methods for microbiological examination of foods, (Direct examination, cultural techniques), enumeration methods, Alternate indirect methods (dye reduction, electrical, ATP), rapid methods for detection of specific organisms & toxins (immunological/molecular methods).

**UNIT–IV**

Chemical analysis of cereals, milk, eggs, meat, fruits & vegetables. Sensory analysis–General testing conditions, taste, odor, aroma & other senses. Descriptive, Discrimination & Acceptance tests. Taint tests, Layout & requirements of sensory test laboratory. Types of panels the requirements of panel members.

**Recommended Books:**

1. Jelling, Gisela. Sensory evaluation of food theory & quality control for fruits & vegetable products, 2nd Edition, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
2. Krammer A & Twigg B.A. Quality Control in Food Industry Vol. I.
3. Krammer A & Twigg B.A. Quality Control in Food Industry Vol. II.
4. Hayes P.R. (1992). Food Microbiology & Hygiene Elsenien Science Publishers Ltd., England.
5. Aurand L.W. & Wood A.E. Food Composition & Analysis.



**SEMESTER–VI****MICROBIAL & FOOD TECHNOLOGY****(PRACTICAL)****Time: 4 Hours****Marks: 25**

1. Platform tests for milk
2. Detection of additives/preservatives/neutralizers in milk.
3. Determination of fat, TS & SNF in milk.
4. Physical examination of cereals.
5. Proximate composition of wheat flour.
6. Microbiological examination of milk by MBRT & SPC.
7. Determination of % salt and reducing sugars in fruits & vegetable products.
8. Grading of eggs by candling.
9. Cut out examination of a canned food product & sensory analysis.

**SEMESTER–VI****BIOINFORMATICS (VOCATIONAL)****STRUCTURAL BIOLOGY AND MOLECULAR MODELLING  
(THEORY)**

**Time: 3 Hrs.**  
**Credit Hours: 6**

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

**Instructions for the Paper Setters and Candidates:**

1. There will be a total of 9 questions.
2. Question 1 will be compulsory and will be of 10 short answer type. **(1½ x10=15)**
3. The remaining 8 questions shall include 2 questions from each unit. Candidates shall be required to attempt 1 question from each unit. All questions shall have equal marks.

**(15x4=60)**

**UNIT–I**

Isolation and purification of proteins, Protein sequence determination: Edman degradation, Mass Spectroscopy, Determination of protein structure: X-ray diffraction, NMR spectroscopy, Electron Microscopy.

**UNIT–II**

Protein Architecture: Motifs, Domains, classification of three dimensional structures in Brook haven protein databank (Pfam, SCOP, CATH). Secondary structure prediction: Chou Fasman, GOR. Protein Motifs and Domain Prediction (using Multiple sequence alignment, Regular expressions and statistical modelling), Prediction of three dimensional structure of proteins (Homology Modelling).

**UNIT–III**

Drug Design process, Computer aided drug design (Structure based drug design, Ligand based drug design), Quantitative structure activity relationship: QSAR Descriptors, Development of Hansch Equation, ADMET Prediction.

**UNIT–IV**

Empirical force fields for trimolecular simulations, Molecular Dynamics simulations techniques, Simulated Annealing, Conformational Analysis, Calculation of relative free energy using simulation techniques.

**List of Books:**

1. Broune P.E. and Weissig H. (Eds) Structural Biology. John Willey and Sons. N.J. USA (2002).
2. Creighton T.E. Protein Structure and Molecular Properties. W.H. Freeman and Company. (2001).
3. Martin R.B. Introduction to Biophysical Chemistry. McGraw Hill New York.

**SEMESTER–VI****BIOINFORMATICS (VOCATIONAL)****LAB IN STRUCTURAL BIOLOGY AND MOLECULAR MODELLING  
(PRACTICAL)****Time: 3 Hrs.****Marks: 25****Credit Hours: 4½**

- Discovering motifs from DNA or Protein Sequences using MEME.
- Homology Modelling using SWISS-MODEL
- To analyze protein sequence using Secondary Structure prediction methods: GOR, CHOU-FASMAN
- To retrieve various structures of proteins from RCSB, their classification system using CATH/ SCOP.
- To carry out molecular dynamics simulation on a protein
- To carry out rigid body docking between a protein and ligand

**SEMESTER–VI**

**BIOTECHNOLOGY (VOCATIONAL)**

**ENVIRONMENTAL BIOTECHNOLOGY AND PLANT BIOTECHNOLOGY  
(THEORY)**

**Time: 3 Hrs.**

**Teaching Hours: 6**

**Max. Marks: 100**

**Theory Marks: 75**

**Practical Marks: 25**

**Instructions for the Paper Setters and Candidates:**

1. There will be a total of 9 questions
2. Question 1 will be compulsory and will be of 10 short answer type. **(1½x10=15)**
3. The remaining 8 questions shall include 2 questions from each unit.  
Candidates shall be required to attempt 1 question from each unit.  
All questions shall have equal marks. **(15x4=60)**

**ENVIRONMENTAL BIOTECHNOLOGY**

**UNIT–I**

Renewable and non-renewable resources, What is renewable should be bioassimilable biodegradable;

Major consumer items: Food, fuel and fibres, Conventional fuels and their environment impact:

- Firewood, Plant and animal wastes, Coal, Gas, Animal oils. Modern fuels and their environment impact.
- Methogenic bacteria and biogas.
- Microbial hydrogen production, Microbial bioconversion, biotransformation, beer & wine production.
- Microbial mining, metalurgy, BOD & COD, environmental degradation and role of biotechnology in sustainable development. Environmental microbiology in chemical and other industries.
- Conversion of sugars to ethanol. The gasohol experiment.
- Solar energy converters-Hopes from the photosynthetic pigments.
- Plant based petroleum industry.
- Cellulose degradation for combustible fuel.

## UNIT–II

Biotechnological inputs in producing good quality nature fibres - Transgenic sheep and transgenic plants, Microbiological quality of food and water, Treatment of municipal waste and industrial effluents and waste water management, Degradation of pesticides and other toxic chemicals by microorganisms, Thuringensis toxin as a natural pesticide, Biological control of other insects swarming the agricultural fields, Enrichment of ores by microorganisms, Biofertilizers and organic farming. Nitrogen fixing microorganisms enrich the soil with Assimilable nitrogen.

## PLANT BIOTECHNOLOGY

### UNIT–III

Introduction to *in vitro* methods. Terms and definitions. Use of plant growth regulators, Beginning of *in vitro* cultures in our country, Ovary and ovule culture, *in vitro* Pollination and fertilization. Embryo culture, embryo rescue after wide hybridization, and its applications. Introduction to the processes of embryogenesis and organogenesis and their Practical applications, Clonal, multiplication of elite species using Micropropagation methods via axillary bud, shoot-tip and meristem culture.

### UNIT–IV

Haploids and their applications. Somaclonal variations and their applications, Endosperm culture, production of triploids and their Practical applications, Single-cell suspension cultures and their applications in selection of variants.

### UNIT–V

Introduction to protoplast isolation: Principles and applications, Testing of viability of isolated protoplasts, Various steps in the regeneration of protoplasts. Somatic hybridization—an introduction, Various methods for fusing protoplasts, Chemical, electrical, Use of markers for selection of hybrid cells. Practical applications of somatic hybridization (hybrids vs Cybrids). Use of plant cell, protoplasts and tissue culture for genetic manipulation of plants. Introduction to *Agrobacterium tumefaciens*, Tumor formation on plants using *A. tumefaciens* (Monocots vs. Dicots), Root-formation on plants using *A. rhizogenes*, Practical application of genetic transformation.

**Books Recommended:**

1. Davis, B.D., Dulbecco, R., Eisen, H.N. and Ginsberg, H.S. (1991). Microbiology, 4<sup>th</sup> edition, Harper and Row, Singapore.
2. M.K. Razdan (2003). An Introduction to Plant Tissue Culture, 2<sup>nd</sup> Edition, Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
3. Pelczar, M.J. Jr., Chan ECS and Krieg, N.R. (1993). Microbiology Concepts and Applications, McGraw Hill, NY.
4. Stanbury, P.F. Whitaker, A. and Hall, S.J. (2001). Principles of Fermentation Technology, 2<sup>nd</sup> ed., Aditya Books (P) Ltd., New Delhi.
5. B.D. Singh (2012), Biotechnology: Expanding Horizons, Kalyani Publishers.
6. G.S. Chahal and S.S. Gosal (2002). Principles and Procedures of Plant Breeding. Biotechnology and Conventional Approaches, Narosa Publishers.
7. Chawla, H.S. (2009). Introduction to Plant Biotechnology, 3<sup>rd</sup> Edition, Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
8. Bhojwani, S. S. and Razdan, M. K. (1996). Plant Tissue Culture: Theory and Practice, A Revised Edition, Elsevier India, New Delhi.

**SEMESTER–VI****BIOTECHNOLOGY (VOCATIONAL)****ENVIRONMENTAL BIOTECHNOLOGY AND PLANT BIOTECHNOLOGY****(PRACTICAL)****Time: 3 Hrs.****Marks: 25****Teaching Hours: 4½**

Preparation of Media (simple and complex) significance of sterilization, selection of explant.

Initiating plant tissue culture: (differentiation of explants).

Growth of plant cells into undifferentiated callus mass.

Raising plant cell suspension cultures *in vitro*.

Monitoring Microbial contamination (bacteria, fungi and mycoplasma)/Sterilization techniques:

Theory and Practical.

- Glass ware sterilization

- Media sterilization

- Laboratory sterilization

Demonstration/operation of large scale fermenters

Screening, isolation and selection of cellulolytic microorganism B.O.D. determination

**Books Recommended:**

1. Chawla, H.S. (2004). Laboratory Manual for Plant Biotechnology, Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. Benson, H.J. (1994). Microbiological Applications, 6th ed., Win, C. Brown Publishers, England.
3. Cappucino, J.G. and Serman, N. (2002). Microbiology–A Laboratory Manual, 6<sup>th</sup> ed., Pearson Education, New Delhi.

**SEMESTER–VI****EDUCATION****MODERN INDIAN EDUCATION****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper Setters:**

**Note:** (i) The question paper will consist of five Units: I, II, III, IV & V. Units I, II, III & IV will have two questions each carrying 20 marks. The students are to attempt one question from each unit approximately in 1000 words. Unit –V consists of 10 short answer type questions to be set from their entire syllabus and will carry 20 marks in all. Each short answer type question carries 2 marks, to be attempted in 8 to 10 lines.

**UNIT–I**

1. Meaning & aims of Elementary Education
2. Universalization of Elementary Education – Need & importance and its problems

**UNIT–II**

1. Meaning & Aims of Secondary Education
2. Vocationalization of Secondary Education – Meaning, Need & importance and its problems

**UNIT–III**

1. Role of Sarv Shiksha Abhiyan in strengthening Elementary Education
2. Right to Education Act – 2009

**UNIT–IV**

1. Functions of PSEB, CBSE, ICSE
2. Functions of NCERT, SCERT, UGC

**UNIT–V**

This Unit (V) will consist of 10 short type questions to be set from the entire syllabus of first four Units (I, II, III, IV)



**Books Recommended:**

1. Bhatia K.K., Chadha P.C., Kadyan, K.S. Sharma, S: Modern Indian Education and its Problems, Parkash Brothers Ludhiana, 2005.
2. Bhatnagar, Suresh: Modern Indian Education and its Problems, Meerut, R.Lall Book Depot (2006).
3. Bhullar, G.K.: Emerging Indian Education: Challenges and Trends, Jalandhar, Modern Publishers, (2010).
4. Chakravarti, M. Education in the 21<sup>st</sup> Century, Kalpaz Publishers, New Delhi, 2007.
5. Srivastva, D.S., Elementary Education, Isha Books Publishers, New Delhi, 2007
6. Sodhi, T.S: Emerging Trends in Indian Education, Patiala, Bawa Publication, 2007.

## HUMAN RIGHTS

### WOMEN RIGHTS AND HUMAN RIGHTS

**Time: 3 hours**

**Max. Marks: 100**

#### **Instructions for the Paper Setters:**

The question paper will consist of five sections A, B, C, D and E. Section A, B, C and D will have two questions from the respective portion of the syllabus and will carry 20 marks each. Section E will consist of 10 short answer type questions to be set from the entire syllabus i.e. sections A,B,C & D and will carry 20 marks in all ,such short answer type questions carry 2 marks.

#### **Instructions for the Candidates:**

Candidates are required to attempt one question each, from sections A, B, C and D of the question paper and the entire section E. The candidates are required to answer the short questions in not less than 50 words.

#### **UNIT-I**

Social construction of Gender

#### **UNIT-II**

Sex and Gender

#### **UNIT-III**

Understanding Patriarchy

#### **UNIT-IV**

Laws Institutions and women's rights

#### **UNIT-V**

Women's Political participation and Representation in India

#### **UNIT-VI**

Gender Justice

**Recommended Books:**

1. Chatterji, Mohini, Women's Human Rights, Avishkar Publishers, Jaipur.
2. Padma, Iyer, Human Rights of Women, Pointer Publishers, Jaipur.
3. Uma Devi, K., Violence Against women: Human Rights Perspective, Serial publication, New Delhi.
4. Siddiqi and Ranganathan, hand Book on Women and Human Rights: a guide for Social Activities, Part I, kanishka Publishers, New Delhi.
5. Siddiqi and Ranganathan, Hand Book on women and Human Rights: A Guide For Social Activities Part II, kaniishka Pblishers, New Delhi.
6. Khan, M.A., Women and Human Rights, Associated Publishers, Ambala city.
7. Sharma Urmila, Women and Human Rights, Shalab Book House, Merrut
8. Kaushal, Rachna, (2000), Women and Human Rights in India. New Delhi: Kaveri Books.
9. Khan, Mumtaz Ali, (1998), Women and the Human Rights, Commonwealth, New Delhi.
10. Kaushik, Vijay (1999), Women's Movements and Human Rights, Pointer Publishers Jaipur.
11. Nirmal, C.J., (1999), Human Rights in India, Oxford, New Delhi.
12. Saxena, Shobha, (1999), Crimes against Women and Protective Laws, Deep and Deep, New Delhi.
13. UN, (1999), Convention on the Elimination of all Forms of Discrimination again.

**SEMESTER–VI**

**DAIRY FARMING (VOCATIONAL)  
(THEORY)**

**Time: 3 Hours**

**Periods/Week: 6**

**Instructions for the Paper Setters:**

**Max. Marks: 100**

**Theory Marks: 50**

**Practical Marks: 50**

1. Question paper should be set strictly according to the syllabus and in Punjabi language.
2. The language of questions should be straight and simple.
3. Theory paper shall consist of three parts :-
  - a) Ten short compulsory questions of two marks each requiring short replies up to five lines each. **(5x2=10 Marks)**
  - b) Five questions of six marks each requiring short replies shall be asked. The candidate has the choice to attempt eight questions. **(4x6=24 Marks)**
  - c) Two questions of descriptive type requiring five pages for each answer shall be asked. The candidate has the choice to attempt one question. **(16x=16 Marks)**
4. The question paper should cover the whole syllabus.

**1. Marketing of Milk and Milk Products**

Organisation of dairy unit, cooling, storage and transportation of milk. Standardization, homogenization and pasteurization of milk. Types of marketable milk. Processing of milk. Quality control tests of milk and *ghee*. Distribution of milk, Export of milk and milk products.

**2. Role of Govt. departments and institutions in Dairy**

**Farming**

Role of organizations like Animal Husbandry Department, Dairy Development Board, National Dairy Research Institute, Banks, Co-operatives, P.A.U., GADVASU, Milk Producers' Cooperative Societies, Milk Plants, Private milk plants, their role as stake holders.

**3. Operation Flood**

Role and scope of Dairy Farming in National Economy. National Dairy Development Board, Indian Dairy Development Corporation, Milkfed.

4. Dairy Farm Record Keeping and its importance.

**SEMESTER–VI**

**DAIRY FARMING (VOCATIONAL)  
(PRACTICAL)**

**Time: 3 Hours**  
**Periods/Week**

**Marks: 50**

**Distribution of Marks:**

<b>Assignment</b>	<b>10 Marks</b>
<b>Practical Note book</b>	<b>10 Marks</b>
<b>Four Visits to Dairy Farms</b>	<b>10 Marks</b>
<b>Oral Examination</b>	<b>10 Marks</b>
<b>Written Test</b>	<b>10 Marks</b>

**Note:** Preparation of Practical Note book and Dairy Farm Assignment is compulsory

1. Separation of Cream from Milk.
2. Preparation of Curd, butter, ghee, cheese and khoa.
3. Determining the Value of Dairy Animal.
4. Preparation of Dairy Farm Loan Scheme for Submission to credit Agencies.
5. Judging of lactating Cows and Buffaloes.
6. Practice in Computation of Rations for Dairy Stock.

**Text Books:**

1. A Text book of Animal Husbandry by G.C. Banerjee.
2. A Text book of Livestock Production and Management in Tropics by D.N. Verma.
3. Livestock Production and Management by NSR Sastry and C.K. Thomas.
4. Livestock and Poultry Production by H. Singh and E.N. Moore.
5. Handbook of Animal Husbandry Published by ICAR New Delhi.
6. Thronton's Meat Hygiene by Thronton.
7. Dairy Farming: Extension booklet No. PAU/1992/F/29/P published by Communication Centre, PAU, Ludhiana (Punjab).
8. "Dudharaun Layee Dharay" (Punjabi) Extension booklet No. PAU/1993/F/560 Published by PAU, Ludhiana.
9. Dairy Farm Record Keeping, PAU, Ludhiana (Punjabi) Booklet.
10. Feeding Dairy Cattle Extension booklet published by NDRI, Karnal. (English).

**SEMESTER–VI**

**RSL–321**

**RUSSIAN**

**PAPER–I (Written) GRAMMAR & an Introduction to Literature**

**Time: 3 Hrs.**

**Max. Marks: 80**

1. Grammar from text-book **Marks: 30**
  
2. Composition (one out of four topics) **Marks: 10**
  - Revision of all cases in singular & plural (nouns, adjectives & pronouns)
  - Aspects of verbs, Verbs of motion with & without prefixes, The relative pronoun “                   ”, its declension & usage, Participles & participle constructions, Short form of the past participle, Active & passive voice, Direct & indirect speech, Gerund.

**Composition Topics:**

, , , , , . (One out of given three)

**Introduction to Literature**

Biography of the writers: A S Pushkin, L. Tolstoy, M. Gorky, M. Sholokhov, M. Lermontov, Gogol, Chekhov. (One out of given three to be attempted) **Marks: 10**

1. Three questions out of five based on the works of these writers, like, “Tolstii u Tonkii, “Pepe”, “Sudba Cheloveka”, “Ya vas lubil”, “Parus”. **Marks: 30**

**SEMESTER–VI****RSL–321:****RUSSIAN****PAPER–II (ORAL)****Max. Marks: 20**

- Reading of a text

**Marks: 05**

- Conversation

**Marks: 10**

- Retelling of a small text in Russian

**Marks: 05**

(Besides general talk it includes questions on the prescribed text of Q.1)

**Prescribed Text-Book:**

“RUSSIAN” – by Wagner V.N. & Ovsienko Y.G. (Lessons 53 to 62)

**Recommended Books:**

1. Langenscheidt Pocket Russian Dictionary.
2. Russian for Indians by Hem Chandra Pande.
3. “RUSSIAN” – by Ovsienko Y.G. & Skopina (Part-I & II).

**SEMESTER–VI****FRENCH****PAPER–I (COMPOSITION, GRAMMAR & COMPREHENSION)****Time allowed: 3 Hrs.****Max. Marks: 40****A. Composition:**

An official letter in French

Topics for official letters:

- i. Demande d'emploi
- ii. Demande de renseignements p. ex.:
  - Alliance Francaise
  - Ambassade de France
  - Bureau de tourisme
  - Agence de voyage
- iii. Commander des articles
- iv. Demander de conge

**B.** Grammar exercises based on textbook.

**C.** Grammar exercises based on textbook.

**D.** Precis writing / build a story.



**SEMESTER-VI****FRENCH****PAPER-II (LITERATURE AND TRANSLATION)****Time: 3 Hrs.****Max. Marks: 40**

**A.** Brief biography, philosophy & main works of following writers: Guy de Maupassant, Albert Camus

**B.** Simplified novel: Le Tour du Monde en 80 jours by Jules Verne

**C.** Translation from French into English.

**D.** Translation from English into French

**Prescribed Textbook: “CONNEXIONS-3”** by Regine Merieux & Yves Loiseau, Published by Didier (UNITs 6-10)

Supplementary Reading: Histoire de la Littérature Française (Lagarde et Micharde)  
Modern French Course-Mathurin Dondo.

**SEMESTER–VI**

**FRENCH**

**PAPER–III: (ORAL)**

**Max. Marks: 20**

- Reading of a text
- Conversation
- Retelling of a small text in French

**SEMESTER–VI****URDU****URL–302: HISTORY OF URDU LITERATURE****Time: 3 Hours****Max. Marks: 100**

1. Urdu ka Ahd-e-Zareen, with special reference to the following:-  
Zauq, Ghalib, Momin and Zafar
2. Urdu Sha'iri Ke Naye Rujhanat with special reference to the following poets:  
Azad, Hali, Chakbast and Iqbal
3. Taraqqi Pasand Tehrik Aur Urdu Sha'iri with special reference to the following poets:  
Majaz, Faiz, Ali Sardar Jafri and Jazbi
4. Urdu Nasr Ka Irtiqa Aur Fort William College
5. Urdu Nasr Ka Ahd-e-Zareen with special reference to the following:  
Sir Syed Ahmad Khan, Shibli Naumani and Hali
6. Modern Urdu Friction:  
General information about the contribution of:  
Krishan Chander, Rajinder Singh Bedi, Qurratul Ain Haider and Ismat Chughtai and Kanhiya Lal Kapoor

**SEMESTER–VI****URDU****BOOKS RECOMMENDED:**

1. Mukhtsar Tarikh-e- Adab-e-Urdu by Syed Ejaz Husain, Educational Book House, AMU Market, Aligarh – 202002 (UP)
2. Tarikh Adab Urdu by Ram Babu Sexena, Educational Book House, AMU Market, Aligarh – 202002 (UP)
3. Urdu Adab Ki Tarikh by Azeem-ul-Haq Junaidi, Educational Book House, AMU Market, Aligarh – 202002 (UP)
4. Urdu Zaban-o-Adab ka Khaka by Khushhal Zaidi, Edara Bazme Khizre Rah, 80- Ghaffar Manzil Jamianagar, New Delhi, 110025.

**SEMESTER–VI**

**PERSIAN**

**PRL–302: COMPOSITION AND GRAMMAR**

**Time: 3 Hours**

**Max. Marks: 100**

**Composition:**

(a) **Composition:** Essay in Persian on any one of the following:-

Gulistan-e-saadi, Hafiz, Farsi Ghazal, Farsi Qasida , Masnavi-e-Manavi , Sarmad, Bahar ,  
Parveen, Umar Khayam & Khusru bahaisiyat Ghazalgo

b) **Grammar:** Definitions and examples of the following:

1) **ASNAF-E-SHA'RI:** Ghazal, Qaseeda, Masnavi, Rubai etc.

2) **AJZA-E-SHER:** Matla, Maqta, Husan-e-Matla, Qafiya, Radeef, Tashbeeb,  
Gurez, Dua, Rukhsat, Salam-o-Noha

3) **SANAE-O-BADAE:** Tajnis (Tajnis-e-Taam, Tajnis-e-Murakkab, Tajnis-e-  
Khatti)

Talmih, Ista'ara, Kinaya, Tashbeeh, Ihaam, Mubaligha, Husan-e-Ta'leel,

Tajahul-e-Arifana, Siyaqat-ul-Adad, Mira'tun-Nazir –o- Tarse'a

**SEMESTER–VI**

**PERSIAN**

**BOOKS RECOMMENDED:**

1. Naseem-e-Balaghat by Jalaluddin Jafri, 2- Katra Road, Allabhabad – 211002
2. Ma’ani-o-Bayan. By Dr. Jalil Tajlili, Tehran Edition.
3. Al-Mu’ajjam by Shams Qais Razi, Edara Musannifin, hydeabad.

**SEMESTER-VI**

**SANSKRIT (ELECTIVE)**  
%dk0; ] I kfgR; rFkk fucll/k½

I e; &3 ?k. Vs

i wkkzd&100

i zu&i = dk ek/; e fglnh gkskA mYkj I d'r@fglnh@i atkch@vaxst h ea gks I d'rs gA

i zu i = fuekZ k funZ k &

I Hkxonxhirk ¼}rh; v/; k; ½ ea I s nl 'ykd ndj i kp dh I id x 0; k[; k i Nh tk, &  
5x7 = 35

II Hkxonxhirk ¼}rh; v/; k; ½ ea I s pkj i zu ndj nks dk mYkj i Nh tk, &  
2x7½ = 15

III ykdd I kfgR; ea I s pkj dfr; ka ndj nks dk I kekl; i fjp; i Nh tk, &  
2x10 = 20

IV nl I eLrin@foxg ndj i kp dk foxg@I eLrin i Nh tk, &  
5x2 = 10

V pkj vydkj ndj nks dk y{k.k , oa mnkgj.k I fgr Li "Vhdj.k i Nh tk, &  
2x5 = 10

VI rhu fucll/k ndj I d'r ea , d fucll/k nl i fDr; ka ea fy[kok; k tk, &  
1x10 = 10

i kB; Øe &

½d½ Hkxonxhirk ¼}rh; v/; k; ½

50 vad

i zu ka ds fy, fu/kkZj r fclnq &

(i) I kj

(ii) d".k&vtu I okn

(iii) fu" dke deZ ; ks

(iv) fLFkrik y{k.k bR; kfnA

- ¼[½ ykſdd I kfgR; & fuEufyf[kr dfr; ka dk I kekl; i fjp; & 20 vđ  
Loluokl onŸke} vfhkKku' kkdŸrye} dŸkj I Ehhoe} mŸkj jkepŸj re} dknEcj h} f' k' kj kyo/k}  
fdjkrktŸh; e} fgrki nŸk} i prŸ=A
- ¼x½ I ekl & v0; ; hHkko A 10 vđ
- ¼?k½ vyđkj & mi ek} mRi gkk} : i d} n"VkuR} ; ed} 0; frjđ} vuj kl 10 vđ  
rFkk fo' ks'kkŸDrA
- ¼³½ fucl/k & 1- I Ÿd'rHkk"kk; k% egŸoeA 10 vđ  
2- ee fi z; a i ŸrdeA  
3- ee fi z; dfo%A  
4- vkn' k% Nk=%A  
5- I R; eđ t; rŸA  
6- I Rl æfr-%A



**SEMESTER–VI**

**FUNCTIONAL SANSKRIT (VOCATIONAL)**

**Time:- 3 hours**

**Maximum Marks: 100**

**Written: 80**

**Practical: 20**

ukV & iZu i = fglInh eā gksxkA

iZu i = fuekZk funZk

5 प्रश्न देकर 3 का उत्तर देने के लिए कहा जाये।

3X20 = 60

भाग ख में 4 प्रश्न देकर 2 का उत्तर देने के लिए कहा जाये।

2X10 = 20

i kB; Øe &

eifrī fr"Bki u fof/k%A

Hkkj rh; ; kuka thous orkuka egYoa rRi kyua pA

orkuk I keku; i fj p; A

I R; ukjk; .ki wtkor fof/k%A

x.ki fr i wtk orkfuA

y{ehi wtk orkfuA

I jLorh i wtk oreA

f'koi wtk oreA

**SEMESTER–VI**

**ENGLISH (COMPULSORY)**

**Time: 3 Hours**

**Max. Marks: 50**

**Texts Prescribed:**

1. *The English Teacher* by R.K. Narayan
2. *Glimpses of Theatre*, Guru Nanak Dev University Amritsar.

**Course Contents:**

1. The study of the whole text of the novel, *The English Teacher*
  2. The study of the following one-act plays from the prescribed book, *Glimpses of Theatre*
    - i) “The Will”
    - ii) “Villa for Sale”
    - iii) “Progress”
    - iv) “The Monkey’s Paw”
    - v) “Sorry Wrong Number”
- Essay Writing

**Instructions for the Paper Setter and Distribution of Marks:**

**Note: The paper setters should avoid questions of theoretical nature on English Grammar.**

**The question paper will consist of three sections and the distribution of marks will be as under:**

**Section A: 10 Marks**

**Section B: 24 Marks**

**Section C: 16 Marks**

**Section–A:**

- I. SIX questions (three questions based on the prescribed one-act plays from the textbook, *Glimpses of Theatre* and three questions based on the novel, *The English Teacher* requiring very short answers based on the close reading of the prescribed novel and one-act plays shall be set and examinees will be expected to answer any FIVE. **(2x5=10 Marks)**

**Section–B:**

- II. THREE questions requiring brief descriptive answers based on character, tone, plot and theme(s) in the prescribed one-act plays will be set and examinees will be expected to attempt any TWO. **(6x2= 12 Marks)**
- III. THREE questions on central idea, theme, tone or style etc. of the prescribed novel will be set for the students to attempt any TWO of these questions. **(6x2= 12 Marks)**

**Section–C:**

- IV. ONE question requiring the students to write an essay on one of the three given topics will be set. **(1x8=8 Marks)**
- V. TWO essay type questions (one from the prescribed one-act plays and one from the prescribed novel) will be set for the students to answer any ONE of these questions. **(1x8= 8 Marks)**

**SEMESTER–VI  
ENGLISH (ELECTIVE)  
MODERN ENGLISH NOVEL**

**Time: 3 Hours**

**Max. Marks: 100**

**Texts Prescribed:**

1. *So Many Hungers* by Bhabani Bhattacharya
2. *The Power and the Glory* by Graham Greene
3. *Background to the Study of English Literature* by B. Prasad, Macmillan India Limited  
(Chapters III and IV from Section-I; Chapters IV, V and VI from Section-II; Chapters IV, V and VI from Section-III)

**Instructions for the Paper Setter and Distribution of Marks:**

The question paper will consist of three sections and distribution of marks will be as under:

Section A: 20 Marks

Section B: 48 Marks

Section C: 32 Marks

**Section–A**

**Note:** The examinees will be required to answer all the **TEN** questions set as per the following scheme:

1. Three very short-answer questions (approximately 5 lines each) from *So Many Hungers*
2. Three very short-answer questions (approximately 5 lines each) from *The Power and the Glory*
3. Four very short-answer questions (approximately 5 lines each) from *Background to the Study of English Literature* by B. Prasad. (Chapters III and IV from Section-I; Chapters IV, V and VI from Section-II; Chapters IV, V and VI from Section-III) The questions shall deal with simple definitions and examples of literary terms introduced in the book. (10 x2=20 Marks)

### Section–B

**Note:** The examinees will be required to answer **EIGHT** questions set as per the following scheme:

1. The examinees will be required to answer **THREE** short-answer questions out of the **FOUR** questions set from the novel, *So Many Hungers*. Each answer should be written in about 10-15 sentences.
2. The examinees will be required to answer **THREE** short-answer questions out of the **FOUR** questions set from the novel, *The Power and the Glory*. Each answer should be written in about 10-15 sentences.
3. The examinees will be required to answer **TWO** short-answer questions out of the **FOUR** questions set from the prescribed book, *Background to the Study of English Literature*. (Chapters III and IV from Section-I; Chapters IV, V and VI from Section-II; Chapters IV, V and VI from Section-III) Each answer should be written in about 10-15 sentences.

**Note:** Questions of both theoretical and practical nature requiring understanding of literary concepts and developments may be asked. At least two questions may be set on the analysis of passages/poems that clearly exhibit the use of literary devices discussed in the book.

(8x6=48 Marks)

### Section–C

The examinees will be required to answer any **two** questions (each of 16 marks) out of the three questions set as per the following scheme:

1. One essay type question (3 to 4 pages) from *So Many Hungers*
2. One essay type question (3 to 4 pages) from *The Power and the Glory*
3. One essay type question (3 to 4 pages) on the structure/ development of a genre as discussed in B. Prasad's book. (Chapters III and IV from Section-I; Chapters IV, V and VI from Section-II; Chapters IV, V and VI from Section-III)

(2x16=32 Marks)

**SEMESTER–VI**

**FUNCTIONAL ENGLISH (VOCATIONAL)**

**OFFICE COMMUNICATION FOR BUSINESS**

**Time: 3 Hrs.**

**Total Marks: 100**  
**Theory Paper: 75**  
**Practical Marks: 25**

**Instructions for the Paper Setter and Distribution of Marks:**

**Theory: 75 Marks**

The question paper will consist of three sections and distribution of marks will be as under:

**Section-A: 16 Marks**

**Section-B: 35 Marks**

**Section–C: 24 Marks**

**Practical: 25 Marks**

**SECTION–A**

**EIGHT** very short answer questions requiring students to define, describe, illustrate the concepts, or terms or else requiring the students to tick the most appropriate option or a substitute word out of those provided by the paper setter in the form of multiple choice will be set. The students will be required to attempt all the questions. **(8x2=16 Marks)**

**SECTION–B**

**SEVEN** questions of practical nature will be set to test various skills as required in writing notices, agenda and minutes and business correspondence etc. The students will be required to attempt any **FIVE** of these tasks/ questions. Data for use in these tasks may be provided by the examiner. However this is not a necessary condition. **(7x5=35 Marks)**

**SECTION–C**

**ONE** question (with internal choice) requiring students to present a likely telephonic conversation on a business topic in the written mode. **12 Marks**

**ONE** question (with internal choice) requiring students to write notes on description of products, services and process or customer complaint. **12 Marks**

**Objectives:**

- To equip learners with language proficiency in business/work situations.
- To equip learners with techniques of written communication in business situations.
- To expand vocabulary and develop reading comprehension of material related to business.
- To make learners aware of features of business communication through various modes.

**Course Contents:****UNIT–I****Business Communication:**

- The format of business letters and faxes: Different types of formats, address, opening and closing, subject, heading, subheading, numbering etc.
- Writing letters of application with curriculum vitae/resume, letters of invitation, reply of invitation, enquiry, conference arrangements, reference, announcing forthcoming events, products, visits, making booking for trade fairs, complaints and replies to complaints, apologies, thanks, etc.
- Writing office memos and notes.

**UNIT–II****Business Meetings:**

- Writing notices, agendas, resolutions, minutes of business meetings, preparing notes for a meeting.

**UNIT–III****Telephonic Interaction in Business:**

- Taking messages, making appointments, making enquiries regarding travel bookings, hotel bookings, services, business trading (stocks etc.), placing orders, receiving orders, apologizing, complaining, giving information, etc.

**UNIT–IV****Dealing with Clients and Customers:**

- Describing products and services
- Describing processes
- Persuading clients
- Negotiating and agreeing

**Suggestions for Teaching:**

Along with training in written communication in business, role play, simulation of business situations and playing tape recorded material (e.g. Interview, telephonic conversations) may be used to equip the learners with language proficiency required in work situations. The same may be tested in practical.

**SEMESTER–VI**

**FUNCTIONAL ENGLISH (VOCATIONAL)**

**(PRACTICAL)**

**Marks: 25**

There will be a practical task of 25 marks on different business tasks performed orally or in written mode. The external examiner for practical work shall also give due weightage to the training file of each student at the time of evaluation.

**Books Recommended:**

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

**SEMESTER-VI**

**PUNJABI (COMPULSORY)**  
**ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)**

ਸਮਾਂ: 3 ਘੰਟੇ

ਕੁਲ ਅੰਕ: 50

**ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ**

1. ਕਾਵਿ ਗੌਰਵ (ਪਹਿਲੇ ਛੇ ਕਵੀ)  
(ਸੰਪਾ. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਕਰਮਜੀਤ ਕੌਰ),  
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ,  
(ਸ਼ੇਖ ਫਰੀਦ, ਸ਼ਾਹ ਹੁਸੈਨ, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ, ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ,  
ਵਾਰਿਸ ਸ਼ਾਹ, ਸ਼ਾਹ ਮੁਹੰਮਦ)  
(ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ/ਵਿਸ਼ਾ ਵਸਤੂ/ਸਾਰ)
2. ਧਰਤੀਆਂ ਦੇ ਗੀਤ (ਸਫ਼ਰਨਾਮਾ), ਬਰਜਿੰਦਰ ਸਿੰਘ ਹਮਦਰਦ,  
ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ, ਅੰਮ੍ਰਿਤਸਰ  
(ਲੇਖਕ ਜੀਵਨ ਤੇ ਰਚਨਾ/ਸਮਾਜ ਸਭਿਆਚਾਰ ਪਰਿਪੇਖ/ਸਫ਼ਰਨਾਮੇ ਦੇ ਤੌਰ ਤੇ ਪਰਖ)
3. (ੳ) ਲੇਖ ਰਚਨਾ (ਵਿਗਿਆਨ, ਤਕਨਾਲੋਜੀ ਅਤੇ ਚਲੰਤ ਮਸਲਿਆਂ ਸਬੰਧੀ)  
(ਅ) ਆਧੁਨਿਕ ਸਾਹਿਤ ਰੂਪ: ਕਵਿਤਾ, ਕਹਾਣੀ, ਨਾਵਲ, ਨਾਟਕ, ਇਕਾਂਗੀ  
(ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਤੱਤ)
4. ਵਿਆਕਰਣ :  
(ੳ) ਵਿਆਕਰਨਕ ਸ਼੍ਰੇਣੀਆਂ : ਲਿੰਗ, ਵਚਨ ਅਤੇ ਕਾਰਕ  
(ਅ) ਕਿਰਿਆ ਵਾਕੰਸ਼ : ਪਰਿਭਾਸ਼ਾ, ਬਣਤਰ ਤੇ ਪ੍ਰਕਾਰ

**ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ**

- |    |   |            |
|----|---|------------|
| 1. | ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ/ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ (ਦੋ ਵਿੱਚੋਂ ਇਕ)  | 10 ਅੰਕ     |
| 2. | ਸਮਾਜ ਸਭਿਆਚਾਰ ਪਰਿਪੇਖ/ ਸਫ਼ਰਨਾਮੇ ਦੇ ਤੌਰ ਤੇ (ਦੋ ਵਿੱਚੋਂ ਇਕ)  | 10 ਅੰਕ     |
| 3. | ਲੇਖ ਰਚਨਾ : ਤਿੰਨਾਂ ਵਿੱਚੋਂ ਕਿਸੇ ਇਕ ਵਿਸ਼ੇ ਉੱਤੇ   | 05 ਅੰਕ     |
| 4. | ਸੰਖੇਪ ਰਚਨਾ  | 05 ਅੰਕ     |
| 5. | ਨੰਬਰ 5 ਉੱਤੇ ਨਿਰਧਾਰਿਤ ਵਿਆਕਰਣ ਵਿੱਚੋਂ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ  | 10 ਅੰਕ     |
| 6. | ਉਪਰੋਕਤ ਲੜੀ ਨੰਬਰ 1 ਅਤੇ 2 ਦੀਆਂ ਪੁਸਤਕਾਂ ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ<br>5 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਦਾ ਉੱਤਰ 50 ਸ਼ਬਦਾਂ ਤੋਂ ਵੱਧ ਨਾ ਹੋਵੇ |            |
|    |   | 5X2=10 ਅੰਕ |



**SEMESTER-VI**

**PUNJABI (ELECTIVE)**

**ਪੰਜਾਬੀ (ਇਲੈਕਟਿਵ)**

ਸਮਾਂ ਤਿੰਨ ਘੰਟੇ

ਕੁਲ ਅੰਕ : 100

1. **ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (1700 ਈ. ਤਕ)**  
(ਸੰਪਾ. ਡਾ. ਧਰਮ ਸਿੰਘ, ਡਾ. ਹਿਰਦੇਜੀਤ ਸਿੰਘ ਭੋਗਲ),  
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2007.  
ੳ) ਸਾਹਿਤਕ ਰੂਪ, ਧਾਰਾਵਾਂ ਅਤੇ ਪ੍ਰਵਿਰਤੀਆਂ  
ਅ) ਸਾਹਿਤਕ ਰੂਪ ਦੇ ਸਮੁੱਚੇ ਵਿਕਾਸ ਬਾਰੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।  
(ਵਿਅਕਤੀਗਤ ਸਾਹਿਤਕਾਰ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ ਨਹੀਂ ਪੁੱਛਿਆ ਜਾਵੇਗਾ)  
ਉਪਰੋਕਤ ਦੋਹਾਂ ਭਾਗਾਂ ਵਿਚੋਂ ਦੋ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਨੇ ਇਕ ਇਕ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ।  

20+20 = 40 ਅੰਕ
2. **ਸਾਹਿਤ ਅਤੇ ਹੋਰ ਅਨੁਸ਼ਾਸਨ**  
ਸਾਹਿਤ ਦੇ ਤੱਤ, ਸਾਹਿਤ ਅਤੇ ਸਮਾਜ, ਸਾਹਿਤ ਅਤੇ ਸ਼ਖਸੀਅਤ, ਸਾਹਿਤ ਅਤੇ ਸਭਿਆਚਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਦੋ)  

10+10 = 20 ਅੰਕ
3. (ੳ) **ਛੰਦ** : ਦੋਹਿਰਾ, ਸੋਰਠਾ, ਕਬਿੱਤ, ਕੋਰੜਾ, ਚੋਪਈ, ਸਿਰਖੰਡੀ, ਸਵੱਈਆ ਬੈਂਤ :  
ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਲੱਛਣ (ਚਾਰ ਵਿਚੋਂ ਦੋ)  

5+5 = 10 ਅੰਕ

  
(ਅ) **ਰੇਖਾ ਚਿੱਤਰ** ; ਨਾਟਕ, ਸਫ਼ਰਨਾਮਾ, ਨਿਬੰਧ, ਜੀਵਨੀ, ਸਵੈ-ਜੀਵਨੀ : ਪਰਿਭਾਸ਼ਾ,  
ਪ੍ਰਕਾਰ ਤੇ ਤੱਤ (ਦੋ ਵਿਚੋਂ ਇਕ)  

10 ਅੰਕ
4. **ਵਿਹਾਰਕ ਆਲੋਚਨਾ** :  
ੳ. ਵਿਹਾਰਕ ਆਲੋਚਨਾ : ਸਿੱਧਾਂਤਕ ਪੱਖ  
ਅ. ਵਿਹਾਰਕ ਆਲੋਚਨਾ (ਕਾਵਿ ਦੇ ਪ੍ਰਸੰਗ ਵਿਚ)  
(ਪੰਜਾਬੀ ਕਾਵਿ ਸੰਗ੍ਰਹਿ (1700 ਈ. ਤਕ)/ਸੰਪ. ਡਾ. ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ ਤੇ  
ਮਾਨ ਸਿੰਘ ਢੀਡਸਾ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2007.  
ਹਰੇਕ ਕਵੀ ਦੇ ਪਹਿਲੇ ਪੰਜ-ਪੰਜ ਸ਼ਬਦ/ਬੰਦ/ਸਲੋਕ/ਪਦੇ/ਕਾਫ਼ੀਆਂ ਦੇ ਆਧਾਰ ਉੱਪਰ।  

20 ਅੰਕ

**SEMESTER-VI**

**FUNCTIONAL PUNJABI (VOCATIONAL)**

**ਪ੍ਰਕਾਰਜੀ ਪੰਜਾਬੀ (ਫੰਕਸ਼ਨਲ)**

**ਪੰਜਾਬੀ ਵਿਚ ਕੰਪਿਊਟਰ ਦੀ ਵਰਤੋਂ ਦਾ ਅਭਿਆਸ**

**ਕੁਲ ਅੰਕ : 100**

**ਸਮਾਂ : 2 ਘੰਟੇ**

**ਪ੍ਰੈਕਟੀਕਲ ਅੰਕ: 80**

**ਮੌਖਿਕ ਪ੍ਰੀਖਿਆ : 20**

**ਪ੍ਰੈਕਟੀਕਲ**

**ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ**

1. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਲੇਖ, ਪੱਤਰ, ਨੋਟ ਆਦਿ ਕੰਪਿਊਟਰ ਰਾਹੀਂ ਤਿਆਰ ਕਰਕੇ ਪ੍ਰਿੰਟ-ਆਊਟ ਲੈਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। (ਪ੍ਰੈਕਟੀਕਲ ਦੇ 80 ਅੰਕ ਹੋਣਗੇ)
2. ਵਿਦਿਆਰਥੀ ਕੋਲੋਂ ਕੰਪਿਊਟਰ ਅਤੇ ਸੂਚਨਾ ਤਕਨਾਲੋਜੀ ਬਾਰੇ ਮੌਖਿਕ ਪ੍ਰਸ਼ਨ ਵੀ ਪੁਛੇ ਜਾਣਗੇ। (ਮੌਖਿਕ ਪ੍ਰੀਖਿਆ ਦੇ 20 ਅੰਕ ਹੋਣਗੇ)।

- (ੳ) **ਪੰਜਾਬੀ ਵਰਡ ਪਰੋਸੈਸਿੰਗ** : ਸਿਸਟਮ ਖੋਲ੍ਹਣਾ, ਸਿਸਟਮ ਦੀ ਚੋਣ : ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀ ਚੋਣ-ਅੰਮ੍ਰਿਤ ਲਿਪੀ, ਗੁਰਬਾਣੀ ਲਿਪੀ, ਗੁਰਬਾਣੀ ਕਲਮੀ, ਫਾਇਲ ਬਨਾਉਣੀ, ਸਮਗਰੀ ਦੀ ਪ੍ਰਕਿਰਤੀ ਅਨੁਸਾਰ ਪੰਨੇ ਦੀ ਸੈਟਿੰਗ, ਡਾਇਰੈਕਟਰੀ ਬਨਾਉਣੀ ਅਤੇ ਫਾਇਲ ਨੂੰ ਸੇਵ ਕਰਨਾ ।
- (ਅ) ਹਾਰਡ ਡਿਸਕ ਤੋਂ ਫਲੋਪੀ ਜਾਂ ਪੈਨ-ਡਰਾਈਵ ਅਤੇ ਜਾਂ ਫਲੋਪੀ ਤੇ ਪੈਨ-ਡਰਾਈਵ ਤੋਂ ਹਾਰਡ ਡਿਸਕ ਉਤੇ ਸਮੱਗਰੀ ਪੈਨ-ਡਰਾਈਵ 'ਤੇ ਤਬਦੀਲ ਕਰਨੀ, ਫੀਡ ਕੀਤੀ ਸਮਗਰੀ ਦਾ ਪ੍ਰੀਵਿਊ ਅਤੇ ਪ੍ਰਿੰਟ ਲੈਣਾ ; ਰੀਸੈਟਿੰਗ, ਕੁਰੈਕਸ਼ਨ ਅਤੇ ਡਬਲ ਸਕਰਿਪਟਿੰਗ ਦਾ ਅਭਿਆਸ ਕਰਨਾ, ਫੌਟ ਦਾ ਆਕਾਰ ਚੁਣਨਾ, ਫੀਡ ਕੀਤੀ ਸਮੱਗਰੀ ਦੇ ਭਾਗਾਂ ਨੂੰ ਇਕ ਥਾਂ ਤੋਂ ਦੂਜੀ ਥਾਂ ਲਿਜਾਣਾ ਅਤੇ ਪੈਰਾ ਸੈਟਿੰਗ ਕਰਨਾ ।
- (ੲ) ਪੰਜਾਬੀ ਦੀ ਵੈਬਸਾਈਟ ਖੋਲ੍ਹਣਾ, ਪੰਜਾਬੀ ਵਿਚ ਈ.ਮੇਲ ਭੇਜਣ ਦਾ ਅਭਿਆਸ ਕਰਨਾ ।

**SEMESTER-VI**

**BCG-102**

**ਮੁਢਲੀ ਪੰਜਾਬੀ**  
**(ਪੰਜਾਬ ਦਾ ਇਤਿਹਾਸ ਤੇ ਸੱਭਿਆਚਾਰ)**  
**(In Lieu of Punjabi Compulsory)**

**Time: 3 Hrs.**

**Marks: 50**

**ਅੰਕਾਂ ਦੀ ਵੰਡ :-**

**ਭਾਗ ਓ:-** ਇਸ ਭਾਗ ਵਿੱਚ 15 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀ ਵਲੋਂ ਕਿਸੇ 10 ਦੇ ਉੱਤਰ 30-40 ਸ਼ਬਦਾਂ ਵਿੱਚ ਦਿੱਤੇ ਜਾਣ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ।

**ਭਾਗ ਅ:-** ਇਸ ਭਾਗ ਵਿੱਚ 6 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀ ਕਿਸੇ 3 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ 400-500 ਸ਼ਬਦਾਂ ਵਿੱਚ ਦਿੱਤੇ ਜਾਣ। ਹਰੇਕ ਦੇ 10 ਅੰਕ ਹਨ।

- 1. ਰਣਜੀਤ ਸਿੰਘ ਅਧੀਨ ਪੰਜਾਬ ਦਾ ਏਕੀਕਰਨ ਅਤੇ ਵਿਸਥਾਰ :-** 1790 ਵਿੱਚ ਪੰਜਾਬ ਦੇ ਰਾਜਨੀਤਿਕ ਹਾਲਾਤ, ਰਣਜੀਤ ਸਿੰਘ ਦਾ ਜੀਵਨ ਅਤੇ ਜਿੱਤਾਂ, ਅੰਮ੍ਰਿਤਸਰ ਦੀ ਸੰਧੀ, ਰਣਜੀਤ ਸਿੰਘ ਦੇ ਅੰਗਰੇਜ਼ਾਂ ਨਾਲ ਸਬੰਧ, ਸੈਨਿਕ ਪ੍ਰਬੰਧ, ਪੰਜਾਬ ਦਾ ਮਿਲਾਨ ਬ੍ਰਿਟਿਸ਼ ਰਾਜ ਵਿੱਚ।
- 2. ਰਾਜਨੀਤਿਕ ਜਾਗ੍ਰਿਤੀ ਅਤੇ ਸਮਾਜਿਕ-ਧਾਰਮਿਕ ਸੁਧਾਰ ਅੰਦੋਲਨ :-** 1857 ਦਾ ਵਿਦਰੋਹ ਅਤੇ ਪੰਜਾਬ, ਕੂਕਾ ਅੰਦੋਲਨ, ਗਦਰ ਅੰਦੋਲਨ, ਆਰੀਆ ਸਮਾਜ, ਨਿਰੰਕਾਰੀ ਤੇ ਨਾਮਧਾਰੀ, ਸਿੰਘ ਸਭਾ ਅੰਦੋਲਨ, ਗੁਰਦੁਆਰਾ ਸੁਧਾਰ ਅੰਦੋਲਨ ਅਤੇ ਅਕਾਲੀ।
- 3. ਵੰਡ ਅਤੇ ਸੁਤੰਤਰਤਾ :-** ਜਲਿਆਵਾਲਾ ਬਾਗ ਹੱਤਿਆਕਾਂਡ, ਅਸਹਿਯੋਗ ਅੰਦੋਲਨ, ਨੌਜਵਾਨ ਭਾਰਤ ਸਭਾ, ਸਿਵਲ ਨਾ ਫੁਰਮਾਨੀ ਅੰਦੋਲਨ, ਭਾਰਤ ਛੱਡੋ ਅੰਦੋਲਨ, ਮਹਾਨ ਸੁਤੰਤਰਤਾ ਸੈਨਾਨੀਆਂ ਦਾ ਯੋਗਦਾਨ-

# ਲਾਲਾ ਲਾਜਪਤ ਰਾਏ

# ਮਾਸਟਰ ਤਾਰਾ ਸਿੰਘ

# ਸ.ਕਰਤਾਰ ਸਿੰਘ ਸਰਾਭਾ

# ਸ. ਭਗਤ ਸਿੰਘ

# ਸ.ਊਧਮ ਸਿੰਘ

# ਸ. ਖੜਕ ਸਿੰਘ

**ਸਬੰਧਤ ਪੁਸਤਕਾਂ:-**

1. ‘ਰਣਜੀਤ ਸਿੰਘ’, ਨਰਿੰਦਰ ਕ੍ਰਿਸ਼ਨ ਸਿਨਹਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
2. ‘ਮਹਾਰਾਜਾ ਰਣਜੀਤ ਸਿੰਘ’, ਸੀਤਾ ਰਾਮ ਕੋਹਲੀ, ਆਤਮਾਰਾਮ ਐਂਡ ਸੰਨਜ, ਪਬਲਿਸ਼ਰਜ਼ ਐਂਡ ਬੁੱਕ ਸੈਲਰਜ਼ ।
3. ‘ਸਿੱਖ ਹਿਸਟਰੀ’ 1469-1988 ਖੁਸ਼ਵੰਤ ਸਿੰਘ, ਨਵਯੁੱਗ ਪਬਲਿਸ਼ਰਜ਼, ਨਵੀ ਦਿੱਲੀ ।
4. ‘ਸਿੱਖ ਇਤਿਹਾਸ’ ਭਾਗ ਦੂਜਾ (1839-2004), ਖੁਸ਼ਵੰਤ ਸਿੰਘ ਅਨੁਵਾਦਕ ਡਾ. ਗੁਰਦਰਸ਼ਨ ਸਿੰਘ ਔਲਖ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ ਲੁਧਿਆਣਾ।
5. ‘ਸਿੱਖ ਇਤਿਹਾਸ’ (1526-1849) ਬਿਸ਼ਨ ਦਾਸ, ਮਲਹੋਤਰਾ ਬ੍ਰਦਰਜ਼ ਪਬਲਿਸ਼ਰਜ਼, ਦਿੱਲੀ ।
6. ‘ਪੰਜਾਬ ਦੀਆਂ ਲਹਿਰਾਂ’ (1850-1910), ਸ਼ਮਸ਼ੇਰ ਸਿੰਘ ‘ਅਸ਼ੋਕ’, ਪ੍ਰਕਾਸ਼ਕ ਕਵਿਰਾਜ ਨਰਾਇਣ ਸਿੰਘ ਵੱਲਭ ਨਿਆਮਤ ਪੁਰੀ ।
7. ‘ਪੰਜਾਬ ਦਾ ਵਿਰਸਾ’, ਪ੍ਰਿਥੀਪਾਲ ਸਿੰਘ ਕਪੂਰ, ਨਿਉ ਬੁੱਕ ਕੰਪਨੀ, ਜਲੰਧਰ।
8. ‘ਸਿੱਖ ਇਤਿਹਾਸ’, ਕਨਿੰਘਮ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ ।
9. ‘ਪੰਜਾਬ ਦਾ ਇਤਿਹਾਸ’ (1791-1966) ਸ਼ਿਵ ਗਜਰਾਨੀ, ਮਦਨ ਪਬਲੀਸ਼ਰਜ਼, ਪਟਿਆਲਾ ।

**SEMESTER-VI  
HINDI (ELECTIVE)**

यूक्यु फो/क, ३ वक/क/द क्यु] फुका/क य[कु रफक i क्ज Hkkf"kd 'kCnkoyh

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[k.M&, d

इस भाग में दस प्रश्न पूछे जाएंगे। इसका पांच पंक्तियों में उत्तर देना होगा। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न दो अंक का है। कुल अंक 20 हैं।

[k.M&nks

इस भाग में 12 प्रश्न पूछे जाएंगे जिन में से 8 प्रश्नों का उत्तर देना है। इन प्रश्नों का उत्तर 2 पृष्ठों की सीमा का होगा। प्रत्येक प्रश्न के 6 अंक हैं। कुल अंक 48 हैं।

[k.M&rhu

इस भाग में 4 प्रश्न पूछे जाएंगे। जिनमें से 2 प्रश्नों का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर 5 पृष्ठों का होगा। कुल अंक 32 हैं।

fu/kkfjr i kB; dæ

1. गद्य विविधा: संपादक डॉ. विनोद कुमार तनेजा तथा हरीश सूद 'निश्चिन्त' प्रकाशक, गुरु नानक देव यूनिवर्सिटी, अमृतसर,
2. हिन्दी साहित्य का इतिहास: आधुनिक काल-निर्धारित परिक्षेत्र
  - भारतेन्दु युग: सामान्य परिचय
  - द्विवेदी युग: सामान्य परिचय
  - छायावाद: प्रमुख कवि तथा काव्यगत विशेषताएं
  - प्रगतिवाद: प्रमुख कवि तथा काव्यगत विशेषताएं
  - प्रयोगवाद: प्रमुख कवि तथा तारसप्तक का मूल्यांकन
  - नई कविता: अभिप्राय और प्रमुख विशेषताएं
  - उपन्यास तथा कहानी विधा विकास
  - हिन्दी आलोचना और आचार्य रामचंद्र शुक्ल
3. पारिभाषिक शब्दावली: अंग्रेजी से हिन्दी, हिन्दी से अंग्रेजी (प्रचलित वाक्यांश या अभिव्यक्तियां)(संलग्न)
4. निबंध: राजभाषा एवं राष्ट्रभाषा हिन्दी

fo"k; kupy v d foHkktu

1. प्रथम खंड में पांच अंग्रेजी से हिन्दी, पांच हिन्दी से अंग्रेजी पारिभाषिक शब्दावली से संबंधित प्रश्न होंगे।
2. दूसरे खण्ड में चार प्रश्न सप्रसंग व्याख्याओं के होंगे। जिनमें से दो करनी अनिवार्य होंगी। चार प्रश्न पाठ्य-पुस्तक से होंगे। जिनमें से दो प्रश्न करने होंगे। दो प्रश्न इतिहास और दो निबंध से संबंधित होंगे। जिनमें से एक-एक प्रश्न का उत्तर अनिवार्य है। कुल आठ प्रश्नों के उत्तर देने हैं।
3. चतुसरे खण्ड में दो प्रश्न पाठ्य-पुस्तक से संबंधित होंगे और दो प्रश्न इतिहास से संबंधित होंगे। जिनमें से एक-एक का उत्तर अनिवार्य है।

dk; kly; h 'kCnkoyh

1.	Draft for approval	अनुमोदन के लिए मसौदा
2.	For early approval	शीघ्र आदेश के लिए
3.	For perusal	अवलोकन के लिए/देखने के लिए
4.	For favour of orders	आदेश के लिए
5.	For favourable action	अनुकूल कार्रवाई के लिए
6.	For signature	हस्ताक्षर के लिए
7.	Applicant details and Address	आवेदक का ब्यौरा एवं पता
8.	To see and Discuss	मिलें और विमर्श करें
9.	Forwarded and recommended	अग्रेषित और संस्तुत/सिफारिश की जाती है
10.	For Sympathetic consideration	सहानुभूतिपूर्वक विचार के लिए
11.	early orders are solicited	शीघ्र आदेश अपेक्षित है
12.	Minister has seen	मंत्री जी ने देख लिया है
13.	Need no comment	टिप्पणी की आवश्यकता नहीं है
14.	As early as possible	यथाशीघ्र
15.	Order has been communicated	आदेश भेज दिया गया है
16.	Saving Bank pass book	बचत बैंक खाता पास बुक
17.	Allowed	अनुमति दी
18.	Submitted for information	सूचना के लिए प्रस्तुत
19.	Submitted for orders	आदेश के लिए प्रस्तुत
20.	As amended/ as revised	यथा संशोधित/यथा पुनरीक्षित
21.	Approved as proposed	यथा प्रस्ताव/ प्रस्ताव के लिए अनुमोदित
22.	Await further action	आगे की कार्रवाई की प्रतीक्षा करें
23.	Discrepancy may be reconciled	विसंगति का समाधान कर लिया जाए
24.	Do the needful	आवश्यक कार्रवाई करें
25.	Await further action	अगली रिपोर्ट की प्रतीक्षा करें
26.	Further orders will follows	आगे और आदेश भेजे जाएंगे
27.	I agree	मैं सहमत हूँ
28.	Issue today	आज ही भेजिए/भेज दिया जाए
29.	Issue as amended	यथा संशोधित रूप में भेज दीजिए
30.	Issue reminder urgently	तुरन्त <u>अनुस्मारक/स्मरण-पत्र</u> भेजिए
31.	It is an offence	यह कानूनी अपराध है
32.	Keep with the file	इसे मिसिल/ फाइल के साथ रखिए
33.	Matter is under consideration	मामला(विषय) विचाराधीन है
34.	Obtain formal sanction	औपचारिक संस्वीकृति/मंजूरी प्राप्त करें
35.	Office to note and comply	कार्यालय ध्यान दें और पालन करें
36.	All concerned to note	सभी संबंधित नोट करें/ध्यान दें
37.	Order may be issued	आदेश जारी कर दिया जाए
38.	Please discuss	चर्चा कीजिए

39.	Please speak	बात कीजिए
40.	Please report	विवरण दीजिए
41.	Please keep pending	कृपया इसे रोका जाए
42.	Please circulate and file	सभी को दिखाकर फाइल कर दीजिए
43.	Please inform immediately	तत्काल सूचित कर दीजिए
44.	Please expedite compliance	शीघ्र अनुपालन कीजिए
45.	Paper under consideration	विचाराधीन कागज/स्मरण पत्र भेज दें
46.	Passed for payment	भुगतान के लिए पास किया गया
47.	Reminder may be sent	<a href="#">अनुस्मारक/स्मरण-पत्र</a> भेज दें
48.	Sanctioned as proposed	प्रस्ताव के अनुसार मंजूर/यथा प्रस्ताव संस्वीकृत
49.	Seen, issue	देख लिया, जारी कर दिया जाए
50.	Seen and returned	देख कर वापस किया जाता है

**SEMESTER-VI**

**FUNCTIONAL HINDI (VOCATIONAL)**  
QD'kuy fgluh

j fM; k] njn'kU i d kj.k] vk/kfud njl pkj ek/; e vk] x | dh vU; fo/kk, j

l e; % 3 ?k/s

i wkkd % 60

- क) यह प्रश्न पत्र तीन भागों में बंटा हुआ है। पहले भाग में से दस प्रश्न पूछे जाएंगे। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न 1 अंक का है। कुल अंक 10 हैं।
- ख) इस भाग में से 10 प्रश्न पूछे जाएंगे जिन में से 5 प्रश्नों का उत्तर देना है। इन प्रश्नों का उत्तर दो पृष्ठों की सीमा का होगा। प्रत्येक प्रश्न के 6 अंक हैं। कुल अंक 30 हैं।
- ग) इस भाग में चार प्रश्न पूछे जाएंगे जिन में से 2 प्रश्नों का उत्तर देना होगा। इन प्रश्नों का उत्तर 3-4 पृष्ठों तक सीमित होगा। प्रत्येक प्रश्न के 10 अंक हैं। कुल अंक 20 हैं।

fu/kkfj r i kB; Øe

d½ j fM; ks i d kj.k %

- रेडियो : परिचय और इतिहास
- रेडियो के शैक्षणिक कार्यक्रम
- रेडियो के विविध कार्यक्रम
- रेडियो का हिन्दी भाषा को सम्पर्क भाषा बनाने में योगदान
- रेडियो : प्रसारण विधि और सिद्धांत

[k½ njn'kU i d kj.k

- & दूरदर्शन : परिचय और इतिहास
- & दूरदर्शन : भारत में जालतंत्र
- & दूरदर्शन के शैक्षणिक कार्यक्रम
- & दूरदर्शन : प्रसारण विधि और सिद्धांत
- & रेडियो और दूरदर्शन : तुलनात्मक अध्ययन

x½ njl pkj ds vk/kfud ek/; e

?k½ x | dh vU; fo/kk, a % l S) kfUrd i {k

- आत्मकथा, जीवनी, यात्रावृत्त, रेखाचित्र और संस्मरण : अर्थ, परिभाषा और स्वरूप

M½ VsyhQku] bā/j dkk] byDVkfud esy] VsyhdkiYd ] bā/j uV] ekckby Qku] Qd cp] fVoVj vk] oVt vi

vd foHkktu

- प्रथम भाग में भाग 'ग' में से प्रश्न पूछे जाएंगे। 1×10=10
- द्वितीय भाग में भाग 'क' और 'ख' में से प्रश्न पूछे जाएंगे। 5×6=30
- तृतीय खंड में भाग 'घ' में से प्रश्न पूछे जाएंगे। 2×10=20



**SEMESTER–VI**

**FUNCTIONAL HINDI (VOCATIONAL)**  
QD'kuy fglnh

i z; ksx vksj eks'kdh

i wkkd % 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; %

- कैमरे का सामना करना
- प्रसारण–प्रशिक्षण
- प्रसारण समय ध्यान देने योग्य बातें
- ध्वनि–प्रशिक्षण
- आलेख तैयार करना
- हिन्दी टंकण की विधि
- अंग्रेजी कुंजीपटल पर हिन्दी टंकण
- टंकण करते समय ध्यान देने योग्य बातें

**SEMESTER-VI**

**HINDI PATRAKARITA (VOCATIONAL)**

**हिन्दी पत्रकारिता (वोकेशनल)**

**इलैक्ट्रानिक मीडिया और पत्रकारिता**

**समय: 3 घण्टे**

**पूर्णांक 60**

- क) यह प्रश्न पत्र तीन भागों में बंटा हुआ है । पहले भाग में से दस प्रश्न पूछे जाएंगे । इस भाग के सभी प्रश्न अनिवार्य हैं । प्रत्येक प्रश्न 1 अंक का है । कुल अंक 10 हैं ।
- ख) इस भाग में से 10 प्रश्न पूछे जाएंगे । जिनमें से 5 प्रश्नों का उत्तर देना है । इन प्रश्नों का उत्तर दो पृष्ठों की सीमा का होगा । प्रत्येक प्रश्न 6 अंक का है । कुल अंक 30 हैं ।
- ग) इस भाग में से चार प्रश्न पूछे जाएंगे जिनमें से 2 प्रश्नों का उत्तर देना होगा । इन प्रश्नों का उत्तर 3-4 पृष्ठों तक सीमित होगा । प्रत्येक प्रश्न के 10 अंक हैं । कुल अंक 20 हैं ।

**निर्धारित पाठ्यक्रम -**

- क) कम्प्यूटर और इण्टरनेट  
- कम्प्यूटर शब्दावली (अंग्रेज़ी से हिन्दी में)  
पहले 30 में से  
- कम्प्यूटर शब्दावली (हिन्दी से अंग्रेज़ी में)  
पहले 30 में से  
- कापी साथ संलग्न है ।
- ख) कम्प्यूटर : अर्थ, परिभाषा, गुण व प्रकार  
कम्प्यूटर की उपयोगिता तथा रूप-रेखा  
इण्टरनेट : परिचय/इतिहास  
इण्टरनेट : सम्पर्क सूत्रों का परिचय  
इण्टरनेट : ई-मेल, ई-मेल भेजने की प्रविधि  
बाडजर — इण्टरनेट एक्सप्लोरर : अभिप्राय

ग) पत्रकारिता और प्रेस कानून

मानहानि (Defamation)

न्यायालय की अवमानना (Concept of Court)

भारतीय सरकारी रहस्य अधिनियम, 1923

औषधि और चमत्कारिक उपचार कानून

एकांतता का कानून (The copy right act 1957)

प्रेस एवं पुस्तक पंजीकरण नियम, 1867

प्रेस एवं संसदीय विशेषाधिकार

श्रमजीवी पत्रकार कानून, 1955

### अंक विभाजन

- प्रथम खण्ड 'क' में से 10 प्रश्न पूछे जाएंगे ।  $1 \times 1 = 10$

- द्वितीय खण्ड 'ख' तथा 'ग' में से प्रश्न पूछे जाएंगे ।  $5 \times 6 = 30$

- तृतीय खण्ड 'ग' तथा 'ख' में से प्रश्न पूछे जाएंगे ।  $2 \times 10 = 20$

**SEMESTER-VI**

**HINDI PATRAKARITA (VOCATIONAL)**

**हिन्दी पत्रिकारिता**

**प्रयोग और मौखिकी**

**Marks: 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 ।

**विषय:**

- कम्प्यूटर की आन्तरिक इकाई का ज्ञान ।
- कम्प्यूटर की बाह्य इकाई का ज्ञान ।
- हिन्दी के प्रमुख साफ्टवेयर की जानकारी ।
- कम्प्यूटर की केन्द्रीय संसाधन इकाई की जानकारी ।
- इंटरनेट एक्सप्लोरर के प्रयोग की विधि (Processor / C.P.U.)

**कम्प्यूटर शब्दावली**

हिन्दी से अंग्रेजी अंग्रेजी से हिन्दी

अंकाक्षर	<b>Character</b>	<b>Abstracting Periodicals</b>	सारीकरण पत्रिका
अंकाक्षर कुंजियां	<b>Character Keys</b>	<b>Access Path</b>	अभिगम पथ
अक्षर	<b>Alphabet</b>	<b>Accession</b>	अवाप्ति
अतिवृहत् श्रेणी एकीकरण	<b>Very Large Scale Integartion</b>	<b>Accession Number</b>	अवाप्ति संख्या
अनुकूलन	<b>Compatibility</b>	<b>Accession Register</b>	अवाप्ति पंजिका

<u>अनुक्रमणिका/अनुक्रमणी</u>	<b>Index</b>	<b>Advanced Technology</b>	उन्नत तकनीक
अनुक्रमणीकरण	<b>Indexing</b>	<b>Alphabet</b>	वर्ण
अनुक्रमणीकरण पत्रिका	<b>Indexing Periodical</b>	<b>Alphanumeric</b>	वर्णांकिक
अनुच्छेद	<b>Paragraph</b>	<b>Analog</b>	सदृश
अनुमोदन	<b>Approval</b>	<b>Analogy</b>	सादृश्य
अभिगम	<b>Access</b>	<b>Abort</b>	रुद्ध
अभिगम पथ	<b>Access Path</b>	<b>Apathy</b>	उदासीनता
अनुदेश	<b>Instruction</b>	<b>Application Software</b>	प्रयुक्ति सॉफ्टवेयर
अनुस्मारक	<b>Reminder</b>	<b>Approach</b>	उपगम/अभिगम
अभिज्ञापक	<b>Identifier</b>	<b>Approval</b>	अनुमोदन
अभिलेख	<b>Record</b>	<b>Architecture (Computer)</b>	कंप्यूटर संरचना
अवरोध	<b>Barrier</b>	<b>Arithmetic Logical Unit</b>	गणितीय तार्किक एकक
अवाप्ति	<b>Accession</b>	<b>Artificial Intelligence</b>	कृत्रिम मेधा
अवाप्तिकरण	<b>Accessioning</b>	<b>Assemble</b>	एकत्र
अवाप्ति पंजिका	<b>Accession Register</b>	<b>Assimilate</b>	आत्मसात
अवाप्ति संख्या	<b>Accession Number</b>	<b>Automatic</b>	स्वचालन
अष्टाधारी	<b>Octal</b>	<b>Average</b>	औसत
अष्टाधारी संख्या प्रणाली	<b>Octal Number System</b>	<b>Barriers</b>	अवरोध

अर्द्ध कंडक्टर आधारित	<b>Semi Conductor</b>	<b>Barriers of Information</b>	सूचना संचार के
ट्रांजिस्टर	<b>Based Transistor</b>	<b>Communication</b>	अवरोध
आंकिक	<b>Numerical</b>	<b>Batch Processing Technique</b>	बैच संसाधक तकनीक
आंतरिक	<b>Internal</b>	<b>Bibliographical Detail</b>	ग्रंथात्मक विवरण
आंतरिक स्मृति	<b>Internal Memory</b>	<b>Bibliography</b>	ग्रंथसूची
आख्या	<b>Title</b>	<b>Binary Digit</b>	द्विआधारी अंक
आत्मसात	<b>Assimilate</b>	<b>Binary System</b>	द्विआधारी प्रणाली
आत्मसातीकरण	<b>Assimilation</b>	<b>Book Selection Slip</b>	पुस्तक चयन पर्ची
आह्वान	<b>Call</b>	<b>Borrowing Library</b>	ऋणी पुस्ताकलय
आह्वान संख्या	<b>Call Number</b>	<b>Bridge Language</b>	पुल भाषा
इंगितार्थ	<b>Implication</b>	<b>Calculating Device</b>	गणक उपकरण
		<b>Call</b>	आह्वान
		<b>Call Number</b>	आह्वान संख्या
		<b>Capability</b>	सामर्थ्य
		<b>Cartridge</b>	कार्ट्रिज टेप

**SEMESTER–VI**

**PHYSICAL EDUCATION  
(THEORY)**

**Time: 3 Hours**

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

**Note:- Question paper will be divided into three sections.**

**Section-A:** The candidates are required to attempt all the six questions. Each question carrying two marks. **6x2=12 Marks**

**Section-B:** The candidates are required to attempt seven out of twelve questions. Each question carrying four marks. **7x4=28 Marks**

**Section-C:** The candidates are required to attempt two out of four questions. Each question carrying ten marks. **10x2=20 Marks**

**Part-A**

1. Effect of exercises on muscular, respiratory and circulatory systems.
2. General concept of Vital capacity, Blood pressure, General and Specific conditioning.
3. Tournaments: Draw of fixture, types of tournaments.
  - (a) Knock Out
  - (b) League
  - (c) Combination Tournament
  - (d) Challenge Tournament
4. Organisation of Camps, Play days (Sports Meet)
5. Need and scope of coaching in India. Professional preparation of coaches. Qualifications and responsibilities of a coach.

**Part-B**

1. Meaning and Importance of Kinesiology.
2. Joints, Muscles, heir types and Movements.
3. Therapeutic Exercises, their classification and benefits.
4. Components of Physical Fitness, Speed, Strength, Endurance, Agility and Flexibility.
5. Training Methods; Circuit, Interval, Fartlek, Weight-Training and Cross Country.
6. Methods of Improving Strength, Speed, Endurance, Flexibility and Agility.

**Books Recommended:**

1. Singh Kanwaljeet and Singh Inderjeet: Sports Sociology, Friends Publication, New Delhi 2000.
2. Tandon 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 Olympic movement, Kalyani Publishers, 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 Century, Patiala, 2008.



**SEMESTER–VI**

**PHYSICAL EDUCATION**

**(PRACTICAL)**

**Marks: 40**

Division of Marks: Athletics (12) + Games (12) + Ground Markings (3+3),  
Practical Note Book (5), Viva-Voce (5)

- Athletics Performance -----1500M, Javelin Throw for Boy  
800M, Javelin Throw for Girls
- Games (Boys & Girls) ----- Fundamentals, Rules, Performance  
Kabbadi  
Badminton