

SYLLABUS FOR THE BATCH FROM YEAR 2020 TO YEAR 2023

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

Examinations: 2020-23



**GURU NANAK DEV UNIVERSITY
AMRITSAR**

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SEMESTER–VI

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

Time: 3 Hours

MaxMarks: 100

Instructions for the Paper Setters:-

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

SECTION-A

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

SECTION-B

1. National Power: Its Elements
2. System of Power and Collective Security
3. Cold War and Emerging trends in World order

SECTION-C

1. Emerging world order and Multipolarity
2. Global Environment: Issues and Initiatives
3. International Terrorism : Emergence and Consequences

SECTION-D

1. UNO: Principles, Aims, Objectives and its Functioning
2. Regional Organizations: SAARC and EU.
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. Malhotra, *International Relations*, Anmol 2012
8. John Baylis and Steve 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. Morgenthau, *Politics Among Nations*, Kalyani, 2004
13. Kanth Bajpai & Siddharth Mallavarapu, *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

Instructions for the Paper Setters:-

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

SECTION–A

1. **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.

SECTION–B

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 Ahmadiyahs.

SECTION–C

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.

SECTION–D

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:-

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

SECTION-A

PR-Definition, Concept and Role, Qualities of a PR person, Publics, PR in public & private sector.

SECTION-B

Difference between PR & Advertising, Various PR Organisations,

SECTION-C

Organising a Press, Conference, Various tools of PR, Writing Press, Releases and reports, Need for PR;

SECTION-D

Objectives, Code of Ethics, Crisis management, Public Relations Society of India, Event Management.

SEMESTER–VI
JOURNALISM AND MASS COMMUNICATION (VOCATIONAL)

PUBLIC RELATIONS
(PRACTICAL)

(20 Marks)

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

SEMESTER–VI

**MASS COMMUNICATION & VIDEO PRODUCTION (VOCATIONAL)
VIDEO FOR COMMUNICATION
(THEORY)**

Time: 3 Hours

Max. Marks: 100

Theory Marks: 80

Practical Marks: 20

Instructions for the Paper Setters:-

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

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

SECTION-A

Videoediting

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

SECTION-B

Special Effects

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

SECTION-C

Narration

- Meaning and Role
- Writing & Recording Narration

SECTION-D

Sound Mixing & Editing

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

SEMESTER–VI

**MASS COMMUNICATION & VIDEO PRODUCTION (VOCATIONAL)
VIDEO FOR COMMUNICATION
(PRACTICAL)**

Practical Marks: 20

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

SEMESTER–VI
SOCIOLOGY
SOCIAL RESEARCH AND SCIENTIFIC METHODS

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

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

SECTION-A

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

SECTION-B

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

SECTION-C

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

SECTION-D

- 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.
12. Bajpai, S.R.: *Methods of Social Survey & Research*, Kitab Ghar, Kanpur, 1976.
13. Bhandarkar, P.L and T.S Wilkinson. 2010, *Methodology and Techniques of Social Research*.
Delhi: Himalaya Publishing House.
14. Cargen, Leonard. 2008, *Doing Social Research*. Jaipur: Rawat.
15. Goode, and Hatt: *Methods in Social Research*, McGraw Hill, Tokyo, 1952.
16. Ghosh, B.N.: *Scientific Method & Social Research*, Sterling Publications, New Delhi, 1985.
17. Jaspal Singh: *Introduction to Methods of Social Research*, Sterling, New Delhi, 1990.
18. Jayaram, N.: *Research Methodology: Methods and Techniques*, MacMillian, Madras, 1989.
19. Kalton, Graham: *Introduction to Survey Sampling*, Sage, New Delhi, 1983.
20. Kapila, S.: *Methods of Social Research*, New Academic Publishing Co., Mai Hiran Gate,
Jalandhar, 1991.
21. May, Tim. 2009, *Social Research: Issues, Methods and Process*. Jaipur: Rawat.
22. 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:-

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

SECTION–A

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.

SECTION–B

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

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

SECTION–C

Mood Disorders: Types & Symptoms, Causes and treatment.

Schizophrenia: Symptoms, Causes, Types and Treatment.

SECTION–D

Therapies: Psychodynamic, Behavioural, Cognitive-Behaviour Therapy, Humanistic Therapy, Existential Therapy and Family Therapy

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, PunjabiUniversity, 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:-**

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

SECTION–A**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.

SECTION–B**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.

SECTION–C**Feminism, Woman Rights and Challenges to Patriarchy in India**

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

SECTION–D**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:-

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

Stencil outline maps are allowed

SECTION–A

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

SECTION–B

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

SECTION–C

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

SECTION–D

- 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 : Regions and Powers: Cambridge.
Waever, Ole (eds.) (2003)
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. : Politics Among Nations: Calcutta, Scientific Book Agency.
(1969)
9. Palmer Perkins, : International Relations: Calcutta, Scientific Book Howard Agency
Norman D. and C. (1968)
10. Chaudhury, Subrata : Military Alliances and Neutrality in War and Peace:
Roy (1966) 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 building 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**

Instructions for the Paper Setters:-

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

Objectives

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

Note:

1. Examiner have to send a specimen copy of the outline map of India to be distributed to the student
2. Stencil/outline map and coloured pencils are allowed.

Course Content

SECTION–A

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

SECTION–B

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

SECTION–C

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.

SECTION–D

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 (12th 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 Mollweide'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*, Rasmeeet 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

Instructions for the Paper Setters:-

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

SECTION–A

Introduction:

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.

SECTION–B

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.

SECTION–C

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).

SECTION–D

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
Punjab History & Culture (1947-2000 A.D.)
(Special Paper in lieu of Punjabi compulsory)
(For those students who are not domicile of Punjab)

Time: 3 Hours

Max. Marks: 50

Instructions for the Paper Setters:-

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

SECTION-A

1. Partition and its Impact on Punjab
2. Rehabilitation.

SECTION--B

3. Punjabi Suba Movement and Reorganization Act of 1966.
4. Green Revolution.

SECTION--C

5. Punjabi Diaspora
6. Development of education in Punjab after Independence

SECTION--D

7. Development of Punjabi Literature and Drama.
8. Emerging Concerns: Drug Addiction and Female Foeticide.

Suggested Readings

1. Chopra, P.N. & Das, M.N. (1974), *A Social, Cultural & Economic History of India*. Vol.III, Macmillan India, New Delhi, 1974.
2. Grewal, J.S., *Social and Cultural History of Punjab: Prehistoric, Ancient and Early Medieval*. Foundation Books Pvt Ltd Cambridge House, New Delhi, 2004.
3. Grewal, J.S., *The Sikhs of Punjab*. New Cambridge House, New Delhi, 2005
4. Rai Satya M. , *Heroic Tradition in Punjab(1900-1947)*. Publication Bureau, Punjabi University, Patiala, 1978.
5. Singh, Fauja., *Freedom Struggle in Punjab*. Publication Bureau, Punjabi University, Patiala, 1974.
6. Singh, Fauja, *History and Culture of the Punjab*. Part II, Publication Bureau, Punjabi University, Patiala, 1987.
7. Singh, Kushwant, *A History of the Sikhs*. Vol. II (1839-1998), Oxford University Press, Delhi, 1991.
8. Yadav, K.C., *Haryana Aitihāsik Simhavalokan* (Hindi). Haryana Sahitya Akademy, Chandigarh, 1991.

SEMESTER–VI
OFFICE MANAGEMENT AND SECRETARIAL PRACTICES (VOCATIONAL)
OFFICE PRACTICE AND STENOGRAPHY
(THEORY)

Total marks: 100

Duration: 3 hours

Theory: 60

Practical: 40

Instructions for the Paper Setters:-

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

SECTION- A

Office Automation:- Meaning of mechanization, need, advantages and disadvantages of mechanization. Types of mechanization, communication equipment, copying machine, accounting, tabulating and computing machines and miscellaneous machines.

Office Environment:- Introduction, office lighting – Characteristic of light, day light v/s artificial light, guidelines for good lighting system, advantages, cleanliness, air conditioning and temperature, noise control, ventilation.

SECTION- B

Office Work- Supervision and Supervisor:- Meaning, definition, advantages of good supervision, techniques, distinction between direction and supervision, meaning of supervisor, responsibilities of supervisor, functions, qualities of good supervisor.

Assisting Visitors:- Office etiquettes, effective use of language, Preparation of appointment, schedules and maintaining visitor's diary, instructing Co- workers.

SECTION- C

Grammalogues and Phonography :- Definition of grammalogues and logogram, list of grammalogues, punctuation signs, definition of phrases, how a phrase is written, qualities of good phraseogram, list of simple phrases.

SECTION- D

Circle and loops :- Size and direction, application in phraseography, attachment with straight and curved strokes, exception to the use of circle, loops, size and direction.

Initial of final hooks :- Size and direction, attachment with straight and curve strokes and their uses with the circle and loops.

SEMESTER-VI
OFFICE MANAGEMENT AND SECRETARIAL PRACTICES (VOCATIONAL)
OFFICE PRACTICE AND STENOGRAPHY
(PRACTICAL)

Practical Marks : 40

1. How to assist the visitors.
2. Practices of different machines: Photocopier (6 hours), Word Processor (20 hours), Scanner (8 hours) etc.
3. Variety of drills :-

Shorthand

- Repeated practice of grammalogues and phrases, use of circle, loops and hooks.
- Direction from unseen passage.
- Copying shorthand from blackboard, students dictate to the classroom from shorthand books.
- Taking information from other documents in completion of short hand notes.
- Office style dictation with amendments.
- Submitting transcribed materials for signature.
- Marking and filing of shorthand notices after completion of transcription.

Typing/Word processing

- Typewriting of Manuscripts (typed).
- Typewriting manuscripts (handwritten).
- Practice on carrying out corrections of drafts.
- 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.

Note:- Computer facilities to do practical on computer.

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.

Instructions for Training:

Probable work-sites where on the job training may be organized:

- 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:

Department/Section	No. of weeks
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.

Department/Section	No. of weeks
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.

Semester-VI

Suggested Reading Materials:

(a) Short Hand

Title	Publisher:
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:

Title	Publisher
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.
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

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(Faculty of Economics & Business)

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|---|--|
| 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:-

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

SECTION-A

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)

SECTION-B

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

SECTION-C

Chapter 5. Fairs and Festivals

Sikh, Hindu and Muslim Religious Fairs-Diwali, Holla Mohalla (Anandpur Sahib),
Dussehra, 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).

SEMESTER–VI

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 (Ferozepur), Retreat ceremony at Wagah (Amritsar), Desh Bhagat Yadgaar Hall (Jalandhar), Sikh Museum (Golden Temple, Amritsar), Science City (Kapurthala), Jalianwala Bagh Martyr's Memorial (Amritsar).

SECTION-D

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

punjabtourism.gov.in

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 Setters:-

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

SECTION-A

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

Tourism planning and development, Demand and supply in tourism

SECTION-B

Tourism master plan

Destination development and destination marketing

SECTION-C

Economic, Social and Political consideration of tourism

International tourism organization:

- W.T.O.
- PATA
- IATA

SECTION-D

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.

SEMESTER–VI

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 (VOCATIONAL)
CUSTOMS ACT

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

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

SECTION-A

Role of Customs in International Trade.

Organisation of customs in India-Administrative and Operational Authorities.

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, DOB, FAS, CIF, GATT, Letter of Credit.

Kinds of duties-basic, Auxiliary, additional or countervailing; basis of levy-advallorem, specified duties.

Prohibition of exportation and importation of goods and provisions regarding notified and specific goods.

SECTION-B

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 exbond 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).

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

SECTION-C

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.

SECTION-D

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. Dately 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.

SEMESTER–VI

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

SALES PROMOTION AND PUBLIC RELATIONS

Time: 3 Hours

Marks: 100

Instructions for the Paper Setters:-

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

SECTION-A

Nature 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.

SECTION-B

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. Prince packs, rebates, patronage, rewards.
Conventions, conference and tradeshows, specialities and novelties.

SECTION-C

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.

SECTION-D

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

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

SECTION-A

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

SECTION-B

Law of sales of goods

SECTION-C

Law of negotiable instruments.

SECTION-D

The Punjab shops and commercial establishment act, 1959.

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

Instructions for the Paper Setters:-

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

SECTION-A

- Consumer expectation and services & legislation.
- National tourism civil aviation & policy.

SECTION-B

- Information Technology.
- Computerised Reservation System:-Introduction to CRS, Components of CRS, Need of CRS

SECTION-C

- Market Research: –Concept, Significance, Market Segmentation.
- Data collection

SECTION-D

- 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.

Viva-Voce**Marks: 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'.

**SEMESTER–VI
ECONOMICS**

QUANTITATIVE METHODS FOR ECONOMISTS

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

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

SECTION–A

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.

SECTION–B

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

SECTION–C

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

SECTION–D

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. Weisdenfeld 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
INDUSTRIAL ECONOMICS–VI

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

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

SECTION A

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

SECTION B

Financial Institutions–Commercial Banks; Finance Corporation and Industrial Development Banks.

SECTION C

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.

SECTION D

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

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

SECTION–A

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:-

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

SECTION A

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

Marketing Research—Meaning, Scope, Importance and Techniques.

SECTION B

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

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

SECTION C

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

SECTION D

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. Neelamegtham, 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**

**RURAL DEVELOPMENT–VI
(THEORY)**

Time: 3 Hours

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

Instructions for the Paper Setters:-

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

SECTION A

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.

SECTION B

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

SECTION C

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

SECTION D

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
RURAL DEVELOPMENT–VI

(PRACTICAL)

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:-

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

SECTION-A

Definition of 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.

SECTION-B

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-C

Linear transformation. Algebra of linear transformation. Rank- Nullity theorem, Isomorphism and Isomorphic spaces.

SECTION-D

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:-

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

SECTION-A

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.

SECTION-B

Finite Differences: Forward, Backward, Central, Divided differences, shift operator, relationship between the operators and detection of errors by use of difference operator.

SECTION-C

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.

SECTION-D

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:-

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

SECTION-A

Introduction to index number, problems in the construction of index numbers, Laspyeres, Passche's, Drobish-Bowley, Walsh Marshal-Edgworth and Fisher's formulae for index numbers.

SECTION-B

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-C

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.

SECTION-D

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).

Books 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:-

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

SECTION-A

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.

SECTION-B

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-C

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.

SECTION-D

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.

Books 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- IV
(THEORY)**

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

Marks: 35

Instructions for the Paper Setters:-

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

SECTION-A**1. Spectroscopy**

(12 hrs.)

Nuclear Magnetic Resonance (NMR) spectroscopy.

Proton Magnetic Resonance (¹H 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-B**3. Problems based on spectroscopy**

(11 Hrs.)

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

4. Synthetic Polymers

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.

5. Organic Synthesis via Enolates

Acidity of α -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-C

6. Carbohydrates

(11 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.

SECTION-D

7. Amino Acids, Peptides, Proteins and Nucleic Acids

(11 Hrs.)

Classification, structure and stereochemistry of amino acids. Acid-base behaviour, isoelectric point and electrophoresis. Preparation and reactions of α -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.
8. D.L. Pavia, G.M. Lampan and G. S. Kriz, Introduction to Spectroscopy” Hartcourt College Publishers, 2001

SEMESTER-VI
CHEMISTRY
PHYSICAL CHEMISTRY-IV
(THEORY)

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

Marks: 35

Instructions for the Paper Setters:-

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

SECTION-A

1. Quantum Mechanics-I **(11 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-B

2. Quantum Mechanics-II **(12 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-C

3. Solid State **(11 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.

SECTION-D

4. Photochemistry **(11 Hrs.)**

Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grothus-Draper 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.

**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
- Nitration of Salicylic Acid by green approach (using ceric ammonium nitrate)

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:-

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

SECTION-A

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.

11 Lectures

SECTION-B

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.

11 Lectures

SECTION-C

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.

11 Lectures

SECTION-D

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.

12 Lectures

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: NUCLEAR PHYSICS
(THEORY)**

Time: 3 Hours

Marks: 35

Total Teaching Hrs: 45(3h/week)

Pass Marks: 35%

Instructions for the Paper Setters:-

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

SECTION-A

Nuclear Properties: Constituents of nucleus, non-existence of electrons in nucleus, Nuclear mass and binding energy, features of binding energy versus mass number curve, nucleus radius, angular momentum and parity, nuclear moments: magnetic dipole moment and electric quadruple moment, properties of nuclear forces, Yukawa theory.

11 Lectures

SECTION-B

Radioactive Decays: Modes of decay of radioactive nuclides and decay Laws, radioactive series and displacement law, radioactive dating, constituents of Cosmic rays, Alpha decay: Gamow's theory of alpha decay, barrier penetration as applied to alpha decay, Geiger Nuttal law, Beta decays: β^- , β^+ and electron capture decays, Neutrino hypothesis and its detection, parity violation in β decay, Gamma transitions: Excited levels, isomeric levels, Gamma transitions, internal conversion.

12 Lectures

SECTION-C

Nuclear Reactions: Types of nuclear reactions, reactions cross section, conservation laws, Kinematics of nuclear reaction, examples of nuclear reactions, Q-value and its physical significance, compound nucleus, level width.

11 Lectures

SECTION-D

Nuclear Models: Liquid drop model, semi-empirical mass formula, condition of stability, evidence for nuclear magic numbers, Shell Model, energy level scheme, angular momenta of nuclear ground states, parity and magnetic moment of nuclear ground states.

11 Lectures

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. Nuclear and Particles: E. Segre

SEMESTER–VI

PHYSICS

(PRACTICAL)

Marks: 30

General Guidelines for Practical Examination:

- | | | |
|------|---|-----------------|
| I. | The distribution of marks is as follows : | |
| | i) One experiment | 15 Marks |
| | ii) Brief Theory | 5 Marks |
| | iii) Viva–Voce | 5 Marks |
| | iv) Record (Practical file) | 5 Marks |
| II. | There will be one sessions of 3 hours duration. The paper will have one session.
Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner. | |
| III. | Number of candidates in a group for practical examination should not exceed 12. | |
| IV. | In a single group no experiment be allotted to more than three examinee in any group. | |

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).

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:-

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

SECTION-A**1. 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:-

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

COURSE CONTENTS:**SECTION–A****Salon Management**

- a) Salon Planning
- b) Types of Salon Ownership

SECTION–B**Salon Records and Professional Ethics**

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

SECTION–C**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

SECTION–D**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 – 4 Pds/Week****Instructions for the Paper Setters:-**

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

Objectives :-

To impart nutrition education to vulnerable group of community.

SECTION-A

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, flurosis.
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.

SECTION-B

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

SECTION-C

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 topic, and audio visual aid for target group.
9. Method of enhancing nutritive value of food - Supplementation, sprouting, fermentation, fortification, enrichment.
10. Food Fadism and Faculty Food habits.

SECTION–D

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.

Reference book-

1. Food and Nutrition by Dr. M. Swaminathan.

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 recipes.
 - b) Low cost iron rich recipes.
 - c) Low cost calcium rich recipes.
 - 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

Instructions for the Paper Setters:-

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

SECTION–A

Historic Costumes of World

- 1) Rome
- 2) Asiatic

SECTION–B

Traditional Costumes of the following States of India:

- 3) Gujarat
- 4) Manipur
- 5) Bengal
- 6) Kerela
- 7) Karnataka

SECTION–C

Traditional Textiles of India:

- 8) Irkal & Paithani of Maharashtra
- 9) Pochampali of Andhra Pradesh

SECTION–D

- 10) Sanganeri prints of Rajasthan
- 11) Kanchipuram sarees of Tamil Nadu

References Books:

Sr.no. Book title Author

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:-

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

Course Contents:**SECTION-A****Community Outreach Programmes**

- Parent and community involvement
- Preschool teacher education in India
- NCTE courses for teachers education in early childhood education

SECTION-B

- Pre-primary teacher education curriculum
- Women nurtures and care takers
- Parent participation in school

SECTION-C**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

SECTION-D

- 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:	10 Marks
Class Performance:	10 Marks
Practical File:	5 Marks
Oral Examination:	5 Marks
Preparation of Activity Material:	10 Marks

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:-

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

SECTION–A

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,.

SECTION–B

Management set up in a plant, Market and Consumer Research, Needs and types of Foods consumption trends. Economics, Psychological, Anthropological and Sociological dimensions of food consumption pattern.

SECTION–C

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.

SECTION–D

Traditional foods-Status and need for revival in the context of westernized non-traditional foods, urbanization 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
PAPER: A
(DRAWING & PAINTING)
(THEORY)

Time:3Hrs.

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

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

SECTION–A

Indian Painting:

1. Impact of British on Indian Art- Company School
2. Bengal School- Abanindranath Tagore

SECTION–B

3. Contemporary Art
 - Rabindranath Tagore
 - Amrita Shergill
 - Jamini Rai

SECTION–C

4. S. Sobha Singh, Dhanraj Bhagat, K.K. Hebbar, M.F. Hussain, Satish Gujral.

SECTION–D

5. Kalighat Painting
6. Tanjore 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

GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL) (THEORY)

Time: 3 Hrs

M.Marks:50

Instructions for the Paper Setters:-

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

SECTION-A

Texturing the Metal

1. **Techniques of metal texture:- Repousse And Chasing:-** Definition, tools, procedure
2. **Enameling:-** Definition, procedure, types, methods of enameling
3. **Materials and equipment:-** Enamels, kiln, firing supports, metal.

SECTION-B

4. Cleaning Techniques:-Sand blasting:-

- i. Procedure, Tools, Precautions
- ii. Types of Sand Blasting
- iii. Difference between Sand Blasting and Short Blasting

SECTION-C

5. **FLEXIBLE SHAFT:-** Definition Usage , Description of Flexible Shaft, Accessories Used (drills, bits, polishing discs).
6. **RIVETING:-**Definition, procedure, equipment, types.

SECTION-D

7. FILIGREE WORK:-

- i. Origin and history of filigree work and its material, procedure, popularity
- ii. Lowering and raising the karat of gold.
- iii. Marketing of Jewellery:- trends of Indian and international Jewellery market(U.S, U.K, ASIA)

SEMESTER- VI
GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL)
(PRACTICAL)

TIME: 5 Hours

M. Marks: 50

1. Domestic Jewellery – 3 Final Design
2. Export Jewellery – 3 Final Design
3. Exercise on:
 - i. Chasing
 - ii. Repouse
 - iii. Soldering

Making of Bangles, Bracelets, Ring, arring 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:-

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

SECTION - A

1. 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.

SECTION - B

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.

SECTION - C

9. Audio tapes.
10. Post production–Editing, sucking laying tracks.
11. Mixing of sound.

SECTION - D

12. Monitoring.
13. Difference in the recording, editing and mixing for different media.
14. Sound recordists role in a production crew.

Suggested Readings:

Sr. No.	Book Name	Author
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:

Sr. No.	Book Name	Author
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:-

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

SECTION - A

- a. Fine Screen
- b. Mechanical Tint
- c. Screen Size
- d. Reverse

SECTION - B

- e. Negative, Positive
- f. Bleach Out
- g. Spatter
- h. Over Size

SECTION - C

- i. Center spread
- j. Bridging the Gutter
- k. Cut Out Blue Tint
- l. Half Tone Process

SECTION - D

- m. Doordarshan in Advertising
- n. Art Director
- o. Marketing Executive
- p. Visualizer
- q. Copywriter.

Suggested Readings:

Sr. No.	Book Name	Author
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:

Sr. No.	Book Name	Author
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

Instructions for the Paper Setters:-

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

SECTION - A

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)

SECTION – B

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)

SECTION - C

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)

SECTION - D

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 Baij | 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 for the Paper Setters:-

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

Note:

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. Candidate can take both subjects i.e. Vocal & Instrumental Music as elective subject.
5. Candidate can take Tabla subject along with Music Vocal or Music Inst.

SECTION-A

1. Importance of Globalization in Indian music in Modern Period.
2. Method of formation of 72 Thatas of Dakshini Music System of Pt. VyankatMukhi.
3. Detailed knowledge of Dhrupad & Dhammar Styles of Singing.

SECTION-B

4. Detailed knowledge of following Gharanas of KhayalGayaki.
 - a. Gwalior
 - b. Kirana
 - c. Agra
 - d. Patiala
 - e. Delhi
5. Essay writings on the following Topics:
 - a. Music and Yoga
 - b. Music & Literature

SECTION-C

6. Detailed description and notations :-
 - a. Jaunpuri
 - b. ShudhKalyan
 - c. Bhageshwari
7. Detailed study of the following Talas:
 - a. Jhumra
 - b. Dhammar.

SECTION-D

8. Life & Contribution of the following musicians:
 - a. Girija Devi
 - b. Fayyaz Khan.
9. 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 for the Paper Setters:-**

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

SECTION-A

1. 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).

SECTION-B

4. Formation of 72 Thatas by Pt. Vyankat Mukhi
5. Relation of Raga with Season & Time.

SECTION-C

6. Detailed description and notations of prescribed Ragas:
 - i) Hameer ii) Vrindavani Sarang iii) Bhairavi
7. Detailed knowledge of following Ragas:–
 - i) Kedar ii) Madhmaadh Sarang iii) Bilaskhani Todi
8. Detailed knowledge of the following Talas:
 - i) Jhumra ii) Dhamar.

SECTION-D

9. Salient features of Gurmat Sangeet.
10. Folk instruments of Punjab.

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:-

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

SECTION - A

1. Detailed knowledge of Kuchipudi with its historical background, style, costume and music etc.
2. Abhinaya and its bhedas.

SECTION - B

3. Guru – Shishya parampara.
4. Thumri in Kathak.

SECTION - C

5. Indian and Western Dance.
6. Nayak – Nayika Bhedas.

SECTION - D

7. Folk dances of Haryana.
8. Notation of:

(i) **PANCHAM - SWARI - 15 MATRAS**

- a) Tatkar in Ekgun, Dugun & Chougun Layakarries.
- b) Thaat- 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) 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
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) Kavit-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 Jhaptaal on Tabla.
8. Ability to play the theka of a Jhaptaal 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.

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

Instructions for the Paper Setters:-

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

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. 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).

SECTION-A

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.

SECTION-B

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

SECTION-C

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.

SECTION-D

9. Sound techniques of Tabla accompanying with different singing styles.
10. Detailed knowledge of western percussion instruments.

Recommended Books :

1. Tal Prabandh, Pt. Chhote Lal Mishar Knishka Publishers, 2006
2. Tabla Vadan Parampara Mein Punjab Evem Delhi Gharana, Dr. Prianka Arora, Prof (Dr.) Gurpreet Kaur, Unistar Publishers, 2019.
3. Avanaad Vadhya Tabla, Dr. Murli Manohar, Vinor Publications, Amritsar, 2008
4. Tal Martand, Satya Narayan Vashishath, Sangeet Karyala, Hathras
5. Tal Prakash, Bhagwant S. Sharma, Sangeet Karyalaya, Hathras.

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 Vishesht 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:-

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

SECTION A**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.

SECTION B**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.

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

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

SECTION D**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:-

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

SECTION A

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

SECTION B

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

SECTION C

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

SECTION D

Case Tools and their applications

References:

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

SEMESTER–VI
INFORMATION TECHNOLOGY (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 APPLICATIONS (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:-

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

SECTION A

1. Introduction to 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

SECTION B

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

SECTION C

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

SECTION D

10. Developer 2000
 - * Reports 6.0
 - * Forms 6.0
11. Utilities
 - * Export/Import
 - * SQL
 - * Loader

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B.A./B.Sc. (Semester System) (*12+3 System of Education*) (*Semester–VI*) (*Batch 2020-23*)
(*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****Instructions for the Paper Setters:-**

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

SECTION–A

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.

SECTION–B

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.

SECTION–C

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.

SECTION–D

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.

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–VI) (Batch 2020-23)
(Faculty of Engineering & Technology)

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

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

Note :

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

SECTION – A

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.

SECTION – B

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.

SECTION – C

Tune up: Introduction, Tune up procedure of Engine, Fault finding and troubleshooting in petrol engine and diesel engine.

SECTION – D

Workshop Setup: To set up 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:-**

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

SECTION – A

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

SECTION – B

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

SECTION – C

Methods of Food Preservation: Freezing methods of Food preservation, Preservation of Foods with direct contact of liquid CO₂ Freeze Drying.

SECTION – D

Food Preservation Equipment: Cold storage and Commercial cabinets for preservation of different products.

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

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

SECTION – A

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

SECTION – B

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.

SECTION – C

Industrial Applications: Introduction, Design considerations in Bus Air Conditioning, Air conditioning in textile industry, Engineering Applications.

SECTION – D

Special Applications: Air conditioning of Special type building, Ice Rinks, Medical applications.

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:

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

SEMESTER-VI

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

ਸਮਾਂ 3 ਘੰਟੇ
ਲੈਕਚਰਾਂ ਦੀ ਗਿਣਤੀ:75%

ਕੁਲ ਅੰਕ:100
ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:35

Instructions for the Paper Setters:-

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

SECTION-A

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

SECTION-B

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

SECTION-C

ਬੁਨਿਆਦੀ ਸੰਸਥਾਵਾਂ

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

SECTION-D

ਪ੍ਰਮੁੱਖ ਲਹਿਰਾਂ

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

ਸੁਭਾਈਆਂ 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.), *ਪ੍ਰਸੁੱਖ 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-ਮੂਲਕ 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****Instructions for the Paper Setters:-**

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

SECTION-A

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

SECTION-B

4. Charvaka Darshan: Materialism.
5. Samkhya Darshan: Nature and Characteristics of Purusha & Prakirti, Process of Evolution and Dissolution
6. Shankaracharya: Theory of Maya

SECTION-C

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

SECTION-D

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

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.

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

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

SECTION–A

1. 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

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 Sneha, *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, *ਸੱਦਰਯ 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 ਸੱਦਰਯ ਸ਼ਾਸਤਰ ਕੀ ਭੂਮਿਕਾ*, ਨੈਸ਼ਨਲ ਪਬਲਿਸ਼ਿੰਗ ਹਾਊਸ, ਦਿੱਲੀ, 1984.
2. ਸ਼ਰਮਾ, ਹਰਦਵਾਰੀ ਲਾਲ, *ਸੱਦਰਯ 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:-**

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

SECTION-A

1. Introduction of Parasitology (various terminologies in use).
2. Brief introduction to pathogenic microbes, viruses, Rickettsiae, spirochaetes and bacteria.
4. Epidemic diseases, such as Typhoid, Cholera, Small pox; their occurrence and eradication programs.

SECTION-B

4. 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*.

SECTION-C

5. 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. *Albopictus*); Filariasis (*Culex pipien satigeans*) *Mansonia* sp. Japanes Encephalitis (*C. trinanelorhynchus*); Plague (*Stenophalide cheopis*) and Epidemic Typhus (*Pediculus spp*).

SECTION-D

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.

Suggested Readings:

1. Baker, F.J. and Silverton, R.E. (1985) Introduction to Medical Laboratory Technology, (6th ed), Butlerworth and Co. Ltd.
2. Chatterjee, K.D.(1995), Parasitology, Protozoology and Helminthology (12th ed).
3. Cheesborough, M.(1987), Medical Laboratory Technology for Tropical countries (2nd ed), Butlerworth and Co., Ltd.
4. Garcia, L.S.(2001), Diagnostic Medical Parasitology, (4th 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****ZOO-VI B: Option-i: Medical Laboratory Technology
(THEORY)****Max. Time: 3 Hrs.****Max Marks: 35****Instructions for the Paper Setters:-**

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

SECTION-A

Antigen and antibody interactions-Serodiagnostic assays (Precipitation, agglutination immunodiffusion, ELISA, RIA)

Vaccines

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

SECTION-B

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

SECTION-C

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.

SECTION-D

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 Silverton, R.E. (1985) Introduction to Medical Laboratory Technology, (6th ed), Butlerworth and Co. Ltd.
2. Chatterjee, K.D.(1995), Parasitology, Protozoology and Helminthology (12th ed).
3. Cheesborough, M.(1987), Medical Laboratory Technology for Tropical countries (2nd ed), Butlerworth and Co., Ltd.
4. Garcia, L.S.(2001), Diagnostic Medical Parasitology, (4th 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

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:-

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

SECTION-A

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

a) Sugarcane:

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

b) Cotton:

1. Pink bollworm (*Pectinophora gossypiella*)
2. Red cotton bug (*Dysdercus cingulatus*)
3. Cotton grey weevil (*Myllocerus 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 (*Di cladispa 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 Beetle (*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 Beetle (*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:-**

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

SECTION-A

- I. 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
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:-**

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

SECTION-A

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:-**

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

SECTION-A

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
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 pabda*, *Bagarius bagarius*, *Heterpneustus fossilis*, *Channa marulius*, *C. Striatus*, *Xenetodon cancila*, *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Colisa fasciata* 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:-

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

SECTION-A

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.

SECTION-B

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.

SECTION-C

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.

SECTION-D

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, Wiley 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:-

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

SECTION-A

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).

SECTION-B

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).

SECTION-C

Medicinal Plants: General account of *Terminalia chebula* (Harar), *Terminalia bellerica* (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).

SECTION-D

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. Prinintel, 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.
4. To estimate Importance Value Index for grassland species on the basis of relative frequency, relative density and relative dominance in protected and grazed grassland.
5. To measure the vegetation cover of grassland through point frame method.
6. To measure the above ground plant biomass in a grassland.
7. To study the morphological anatomical features of hydrophytes (*Hydrilla, Eichhornia*)
8. Xerophytes (*Nerium, Calotropis*).
9. To determine diversity indices (richness, Simpson, Shannon-Weaver) in grazed and protected grassland.
10. To estimate bulk density and porosity of grassland and woodland soils.
11. To determine moisture content and water holding capacity of grassland and woodland soil.
12. To study the vegetation structure through profile diagram.
13. To estimate transparency, pH and temperature of different water bodies.
14. To measure dissolved oxygen content in polluted and unpolluted water samples.
15. To estimate salinity of different water samples.
16. To determine the percent leaf area injury of different leaf samples collected around polluted sites.
17. To estimate dust-holding capacity of the leaves of different plant species.
19. **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).
20. **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.
21. Sectioning and staining of jute stem to show the location and development of fibers.
22. Microscopic structure. Tests for lignocelluloses.
23. **Vegetable Oils:** Study of hand sections of groundnut, mustard and coconut and staining of oil droplets by Sudan III and Sudan Black.
24. **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.
25. **Spices:** Examine black pepper, cloves, cinnamon (hand sections) and opened of cardamom and describe them briefly.
26. 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. Princentel, 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 Setters:-**

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

SECTION-A

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

SECTION-B

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.

SECTION-C

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.

SECTION-D

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**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:-

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

SECTION–A

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

SECTION–B

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).

SECTION–C

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.

SECTION–D

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:-**

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

ENVIRONMENTAL BIOTECHNOLOGY**SECTION-A**

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.

SECTION–B

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

SECTION–C

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.

SECTION–D

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. 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, 4th edition, Harper and Row, Singapore.
2. M.K. Razdan (2003). An Introduction to Plant Tissue Culture, 2nd 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, 2nd ed., Aditya Books (P) Ltd., New Delhi.
5. G.S. Chahal and S.S. Gosal (2002). Principles and Procedures of Plant Breeding. Biotechnology and Conventional Approaches, Narosa Publishers.
6. Chawla, H.S. (2009). Introduction to Plant Biotechnology, 3rd Edition, Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
7. 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, 6th ed., Pearson Education, New Delhi.

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

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

SECTION-A

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

SECTION-B

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

SECTION-C

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

SECTION-D

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

SEMESTER–VI

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 21st 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.

SEMESTER–VI**HUMAN RIGHTS****WOMEN RIGHTS AND HUMAN RIGHTS****Time: 3 hours****Max. Marks: 100****Instructions for the Paper Setters:-**

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

SECTION–A

Social construction of Gender, Sex and Gender

SECTION–B

Understanding Patriarchy, Laws Institutions and women's rights

SECTION–C

Women's Political participation and Representation in India

SECTION–D

Gender Justice and Role of Human Rights

SEMESTER–VI

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

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

Instructions for the Paper Setters:-

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

NOTE:

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. The question paper should cover the whole syllabus.

SECTION–A**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.

SECTION–B**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.

SECTION–C**3. Operation Flood**

Role and scope of Dairy Farming in National Economy. National Dairy Development Board, Indian Dairy Development Corporation, Milkfed.

SECTION–D

4. Dairy Farm Record Keeping and its importance.

SEMESTER–VI

**DAIRY FARMING (VOCATIONAL)
(PRACTICAL)**

Time: 3 Hours
Periods/Week

Marks: 50

Distribution of Marks:

Assignment	10 Marks
Practical Note book	10 Marks
Four Visits to Dairy Farms	10 Marks
Oral Examination	10 Marks
Written Test	10 Marks

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**RUSSIAN****RSL–321: PAPER–I APPLIED GRAMMAR****Time allowed: 3 Hrs.****Max. Marks: 40****Instructions for the Paper Setters:-**

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

SECTION–A

1. Grammar (questions based on all the topics covered in the lessons 51-60 of the prescribed text book).

SECTION–B

2. Writing of a dialogue on a given situation.

SECTION–C

3. Questions pertaining to Culture & Civilisation of Russian Federation to be answered in Russian. (8 out of 10).

SECTION–D

4. Writing of a formal E-mail on the given situation.

**SEMESTER-VI
RUSSIAN**

PAPER-II (TRANSLATION)

Time allowed: 3 Hrs.

Max. Marks: 40

Instructions for the Paper Setters:-

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

SECTION-A

1. Translation of any two unseen passages out of the given three from Russian into English, each passage not exceeding about 250 words.

SECTION-B

2. Translation of any two unseen passages out of the given three from English into Russian, each passage not exceeding 200 words.

SECTION-C

3. Comprehension (An unseen passage)

SECTION-D

4. General questions to be answered in Russian (8 out of 10).

**–SEMESTER–VI
RUSSIAN**

PAPER–III (ORAL)

Max. Marks: 20

- | | |
|---------------------------------------|-----------------|
| - Reading & comprehension of a text | 10 Marks |
| - Conversation | 05 Marks |
| - Retelling of a small text in German | 05 Marks |
- (Besides general talk it includes questions on the prescribed text of Q.1)

Note:- Dictionaries are allowed in paper II.

Prescribed Textbook:- “RUSSIAN” – by Wagner V.N. & Ovsienko Y.G. (Lessons 51-60)

Books recommended for additional reading:-

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

SEMESTER–VI

FRENCH

FRL–321: PAPER–I (COMPOSITION & GRAMMAR)

Time allowed: 3 Hrs.

Max. Marks: 40

Instructions for the Paper Setters:-

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

SECTION–A

An official letter in French (one out of two).

SECTION–B

Questions on applied grammar pertaining to the text.

SECTION–C

Questions on applied grammar pertaining to the text.

SECTION–D

Questions of general comprehension pertaining to the vocabulary covered in the text book.

Topics for official letters:-

- i. Demande d'emploi
- ii. Demande de renseignements p. ex.:
 - Alliance Française
 - Ambassade de France
 - Bureau de tourisme
 - Agence de voyage
- iii. Commander des articles
- iv. Demander de conge

**SEMESTER–VI
FRENCH**

PAPER–II (TRANSLATION & LITERATURE)

Time allowed: 3 Hrs.

Max Marks: 40

Instructions for the Paper Setters:-

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

SECTION–A

Novel- Le tour du Monde en 80 jours by Jules Verne

SECTION–B

Biographies : 1) Guy de Maupassant 2) Jean de la Fontaine 3) Albert Camus

SECTION–C

Translation from French into English:

SECTION–D

Translation from English into French.

Note:- Glossary of difficult words may be given for translation purpose in the question paper.

**SEMESTER–VI
FRENCH**

FRL–321: PAPER–III (ORAL)

Max. Marks: 20

- | | | |
|---|-------------------------------------|-----------------|
| - | Reading of a text | 05 Marks |
| - | Conversation | 10 Marks |
| - | Retelling of a small text in French | 05 Marks |

Prescribed Textbook:- “CONNEXIONS-III” (Units 7-12) by Regine Merieux & Yves Loiseau,
Published by Didier

Recommended Book:-

Nouveau Sans Frontières III by Philippe Dominique & Jacky Girard

SEMESTER–VI**URDU****URL–302: HISTORY OF URDU LITERATURE****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper Setters:-**

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

SECTION–A

Urdu ka Ahd-e-Zareen, with special reference to the following: Zauq, Ghalib, Momin and Zafar

SECTION–B

Taraqqi Pasand Tehrik Aur Urdu Sha'iri with special reference to the following poets: Azad, Hali, Faiz, Ali Sardar Jafri and Iqbal

SECTION–C

Urdu Nasr Ka Irtiqa Aur Fort William College

SECTION–D

Urdu Nasr Ka Ahd-e-Zareen with special reference to the following: Sir Syed Ahmad Khan, Shibli Naumani and Hali

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, GRAMMAR AND MEDIA AND INFORMATION

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

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

SECTION-A

Essay in Persian on the following:

Gulistan-e-saadi, Hafiz, Farsi Ghazal, Farsi Qasida, Masnavi Manavi, Sarmad Bahar, Parveen, Umar Khayam & Khusru bahaisiyat Ghazalgo

SECTION-B

Definitions and examples of the following: Ajza-e-sher, Matla, Maqta, Husan-e-Matla, Tashbeeb, Gurez, Dua, Rukhsat, Salam-wa-Noha

SECTION-C

Definitions and examples of the following: 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

SECTION-D

News, Column, Editorial and Internet – Basic information

Books Recommended:-

1. Naseem-e-Balaghat by Jalaluddin Jafri, 2- Katra Road, Allahabad – 211002.
2. Ma'ani-o-Bayan. By Dr. Jalil Tajlili, Tehran Edition.
3. Urdu Sahafat by Anwar Dehlvi. Urdu Academy, Kashmiri Gate, Delhi.
4. Al-Mu'ajjam by Shams Qais Razi, Edara Musannifin, Hyderabad.

SEMESTER-VI

SANSKRIT (ELECTIVE)
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I e; &3 ?k. Vs

i w kkzd&100

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

Instructions for the Paper Setters:-

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

SECTION-A

भगवद्गीता (द्वितीय अध्याय) : 1-36 श्लोक – सप्रसंग व्याख्या ।
भगवद्गीता (द्वितीय अध्याय) से सम्बन्धित प्रश्नों के लिये निर्धारित बिन्दु :
सार, कृष्ण-अर्जुन संवाद, निष्काम कर्मयोग, स्थितप्रज्ञलक्षण इत्यादि ।

SECTION-B

भगवद्गीता (द्वितीय अध्याय) : 32-72 श्लोक – सप्रसंग व्याख्या ।
निम्नलिखित कृतियों का सामान्य परिचय :
स्वप्नवासवदत्तम्, अभिज्ञानशाकुन्तल, उत्तररामचरितम् तथा हितोपदेश ।

SECTION-C

समास – अव्ययीभाव ।
निम्नलिखित कृतियों का सामान्य परिचय :
कुमारसम्भवम्, शिशुपालवध, किरातार्जुनीय, पंचतन्त्र ।

SECTION-D

निबन्ध – 1. संस्कृतभाषायाः महत्त्वम् ।
2. मम प्रियं पुस्तकम् ।
3. मम प्रियकविः ।
4. आदर्शः छात्रः ।
5. सत्यमेव जयते ।
6. सत्संगतिः ।
अलंकार – उपमा, उत्प्रेक्षा, रूपक, दृष्टान्त, यमक, व्यतिरेक, अनुप्रास तथा विशेषोक्ति ।

lk' ui = fuekzk funk k

SECTION-A

- Question-I** 4 श्लोक देकर सप्रसंग व्याख्या पूछी जाये। = 20 अंक
Question-II क. एक प्रश्न = 10 अंक
 ख. एक प्रश्न = 10 अंक

SECTION-B

- Question-III** 4 श्लोक देकर सप्रसंग व्याख्या पूछी जाये। = 20 अंक
Question-IV क. एक प्रश्न = 10 अंक
 ख. एक प्रश्न = 10 अंक

SECTION-C

- Question-V** अव्ययीभाव समास के 10 समस्तपद/विग्रह देकर विग्रह/समस्तपद पूछे जायें। = 20 अंक
Question-VI क. एक प्रश्न = 10 अंक
 ख. एक प्रश्न = 10 अंक

SECTION-D

- Question-VII** 3 विषय देकर एक पर संस्कृत में निबन्ध लिखने को कहा जाये। = 20 अंक
Question-VIII 2 अलंकार देकर लक्षण तथा उदाहरण देने को कहा जाये। = 20 अंक

vudkf| r xJFk &

1. भगवद्गीता – गीता प्रैस, गोरखपुर।
2. संस्कृत साहित्य का इतिहास – बलदेव उपाध्याय।
3. बृहदनुवाद चन्द्रिका – चक्रधर हंस नौटियाल, मोतीलाल बनारसीदास, दिल्ली।

SEMESTER-VI
FUNCTIONAL SANSKRIT (VOCATIONAL)

Time: 3 Hours

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

प्रश्न पत्र हिन्दी में होगा।

Instructions for the Paper Setters:-

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

Syllabus

SECTION-A

प्रमुख व्रतों का सामान्य परिचय (शिवरात्रि व्रत, विभिन्न वासर (वार) व्रत, नवरात्र व्रत इत्यादि)।

SECTION-B

देवता पूजा पद्धति (शिव, दुर्गा, गणेश, लक्ष्मी, सत्यनारायण)।

SECTION-C

नवग्रह पूजा।
मानव जीवन में व्रतों का महत्त्व।

SECTION-D

व्रत दिनों में पालनीय नियम (खाद्य-अखाद्य, वस्त्रधारण, पूजाविधि इत्यादि)।

lk' ui = fuekZk funZk

SECTION-A

Question-I	एक प्रश्न	= 16 अंक
Question-II	एक प्रश्न	= 16 अंक

SECTION-B

Question-III	एक प्रश्न	= 16 अंक
Question-IV	एक प्रश्न	= 16 अंक

SECTION-C

Question-V	एक प्रश्न	= 16 अंक
Question-VI	एक प्रश्न	= 16 अंक

SECTION-D

Question-VII	एक प्रश्न	= 16 अंक
Question-VIII	एक प्रश्न	= 16 अंक

SEMESTER–VI

ENGLISH (COMPULSORY)

Time: 3 Hours

Max. Marks: 50

Instructions for the Paper Setters:-

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

Texts Prescribed:

1. *The Guide* by R.K. Narayan
2. *Glimpses of Theatre*, Guru Nanak Dev University Amritsar.
 - i) “The Will”
 - ii) “Villa for Sale”
 - iii) “Progress”
 - iv) “The Monkey’s Paw”
 - iv) “Sorry Wrong Number”
 - v) “No eggs!No eggs!”

SECTION–A

Study of the novel, *The Guide* by R.K. Narayan.

SECTION–B

One- act plays, and “**The Will**” and “**Villa for Sale**” from *Glimpses of Theatre*, Guru Nanak Dev University Amritsar.

SECTION–C

One- act plays, “**Progress**” and “**The Monkey’s Paw**” from *Glimpses of Theatre*, Guru Nanak Dev University Amritsar and **Essay writing**.

SECTION–D

One-act plays, “**Sorry Wrong Number**” and “**No eggs! No eggs!**” from *Glimpses of Theatre*, Guru Nanak Dev University Amritsar.

Instructions for the paper-setter and distribution of marks:

The question paper will consist of four sections and distribution of marks will be as under:

The question will be divided into four sections:

SECTION–A

Four short answer type questions based on Section 1 will be set. The students are required to attempt any three. Each question carries four marks. One essay type question with internal choice will be set. It carries 8 marks. (3X4+8=20 marks)

SECTION–B

Three very short answer type questions will be set on character, tone, plot and themes of One- act plays. The students are required to attempt any two. (2x2=4) Each question carries two marks. (1x6=6) One essay type question with internal choice will be set. It carries six marks. The total weightage of this section is 10 marks.

SECTION–C

Three short answer type questions will be set on character, tone, plot and themes of One- act plays. The students are required to attempt any two. (2x2=4) Each question carries two marks. One essay type question with internal choice will be set. It carries six marks. (1x6=6). The total weightage of section is 10 marks.

SECTION–D

Three short answer type questions will be set on character, tone, plot and themes of One- act plays. The students are required to attempt any two. (2x2=4) Each question carries two marks. One essay type question with internal choice will be set. It carries six marks. (1x6=6). The total weightage of this section is 10 marks.

SEMESTER–VI
ENGLISH (ELECTIVE)
MODERN ENGLISH NOVEL

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

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

Prescribed Books:

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)

The syllabus is divided into four sections as mentioned below:

SECTION–A

Background to the Study of English literature by B. Prasad, Macmillan India Limited
(Chapters III and IV from Section -I; chapters IV and V from section- II)

SECTION–B

Background to the Study of English literature by B. Prasad, Macmillan India Limited (Chapter VI from section- II ; chapters IV, V, and VI from section- III)

SECTION–C

So Many Hungers by Bhabani Bhattacharya – Complete text

SECTION–D

The Power and the Glory by Graham Greene – Complete text

SECTION-A

Two questions will be set from Section-A of the syllabus. One essay type question based on the structure/development of a genre as discussed in B. Prasad's book would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks.

The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

SECTION-B

Two questions will be set from Section-B of the syllabus. One essay type question based on the structure/development of a genre as discussed in B. Prasad's book would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks.

The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

SECTION-C

Two questions will be set from Section-C of the syllabus. One essay type question based on the theme, plot, and characterization would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. One question may be with reference to the context.

The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

SECTION-D

Two questions will be set from Section-D of the syllabus. One essay type question based on the theme, plot, and characterization would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. One question may be with reference to the context.

The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

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 Setters:-**

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

Course Contents:**SECTION–A**

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.

SECTION–B

Business Meetings: - Writing notices, agendas, resolutions, minutes of business meetings, preparing notes for a meeting.

SECTION–C

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.

SECTION–D

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

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

**ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ
ਸੈਕਸ਼ਨ - ਏ**

ਕਾਵਿ ਗੌਰਵ (ਪਹਿਲੇ ਛੇ ਕਵੀ)

(ਸੰਪਾ. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਕਰਮਜੀਤ ਕੌਰ), ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, (ਸਿਖ ਫਰੀਦ, ਸਾਹ ਹੁਸੈਨ, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ, ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ, ਵਾਰਿਸ ਸਾਹ, ਸਾਹ ਮੁਹੰਮਦ)

(ਪ੍ਰਸ਼ਗ ਸਾਹਤ ਵਿਆਖਿਆ/ਵਸ਼ਾ ਵਸਤੂ/ਸਾਰ)

ਸੈਕਸ਼ਨ - ਬੀ

ਧਰਤੀਆਂ ਦੇ ਗੀਤ (ਸਫ਼ਰਨਾਮਾ), ਬਰਜਿੰਦਰ ਸਿੰਘ ਹਮਦਰਦ, ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ, ਅੰਮ੍ਰਿਤਸਰ
(ਲੇਖਕ ਜੀਵਨ ਤੇ ਰਚਨਾ/ ਸਮਾਜ ਸਭਿਆਚਾਰ ਪਰਿਪੇਖ/ਸਫ਼ਰਨਾਮੇ ਦੇ ਤੌਰ ਤੇ ਪਰਖ)

ਸੈਕਸ਼ਨ - ਸੀ

(ੳ) **ਲੇਖ ਰਚਨਾ** (ਵਿਗਿਆਨ, ਤਕਨਾਲੋਜੀ ਅਤੇ ਚਲੰਤ ਮਸਲਿਆਂ ਸੰਬੰਧੀ)

(ਅ) **ਆਧੁਨਿਕ ਸਾਹਿਤ ਰੂਪ** : ਕਵਿਤਾ, ਕਹਾਣੀ, ਨਾਵਲ, ਨਾਟਕ, ਇਕਾਂਗੀ

(ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਤੱਤ)

ਸੈਕਸ਼ਨ - ਡੀ

ਵਿਆਕਰਨ :

(ੳ) ਵਿਆਕਰਨਕ ਸ਼੍ਰੇਣੀਆਂ : ਲਿੰਗ ਅਤੇ ਵਚਨ

(ਅ) ਕਿਰਿਆ ਵਾਕਸ਼ : ਪਰਿਭਾਸ਼ਾ, ਬਣਤਰ ਤੇ ਪ੍ਰਕਾਰ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, **ਸਾਹਿਤ ਦੇ ਰੂਪ**, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
2. ਜਗਬੀਰ ਸਿੰਘ, **ਗੁਰਮਤਿ ਕਾਵਿ ਦਾ ਇਤਿਹਾਸ**, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
3. ਗੁਰਦੇਵ ਸਿੰਘ ਸਿੱਧੂ, **ਸੂਫੀ ਕਾਵਿਧਾਰਾ ਦਾ ਇਤਿਹਾਸ**, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
4. ਕਰਨਜੀਤ ਸਿੰਘ, **ਪੁਰਾਤਨ ਪੰਜਾਬੀ ਵਾਰਤਕ**, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
5. ਡਾ. ਰਛਪਾਲ ਕੌਰ, **ਪੰਜਾਬੀ ਸਫ਼ਰਨਾਮਾ : ਸਰੂਪ ਸਿਧਾਂਤ ਤੇ ਵਿਕਾਸ**, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
6. ਹਰਜਿੰਦਰ ਸਿੰਘ, **ਸਮਕਾਲੀ ਪੰਜਾਬੀ ਸਫ਼ਰਨਾਮਾ : ਵਿਸ਼ਲੇਸ਼ਣ ਤੇ ਮੁਲਾਂਕਣ**, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ, ਚੰਡੀਗੜ੍ਹ।
7. ਬ੍ਰਹਮਜਗਦੀਸ਼ ਸਿੰਘ, **ਸਾਹਿਤ ਸੰਕਲਪ ਕੋਸ਼**, ਵਾਰਿਸ ਸਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
8. ਜਗਜੀਤ ਸਿੰਘ, **ਪੰਜਾਬੀ ਵਿਆਕਰਨ : ਸ਼੍ਰੇਣੀਆਂ ਤੇ ਇਕਾਈਆਂ**, ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ, ਜਲੰਧਰ।
9. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, **ਪੰਜਾਬੀ ਵਿਆਕਰਨ : ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ**, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ।
10. **ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਬੋਧ**, ਕਸਤੂਰੀ ਲਾਲ ਐਂਡ ਸੰਨਜ਼, ਅੰਮ੍ਰਿਤਸਰ।

SEMESTER-VI

PUNJABI (ELECTIVE) ਪੰਜਾਬੀ (ਇਲੈਕਟਿਵ)

ਸਮਾਂ: ਤਿੰਨ ਘੰਟੇ

ਕੁਲ ਅੰਕ: 100

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

ਸੈਕਸ਼ਨ- ਏ

ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (1901-1995 ਤਕ ਈ. ਤਕ)

(ਸੰਪਾ. ਡਾ. ਜਸਵਿੰਦਰ ਸਿੰਘ, ਡਾ. ਮਾਨ ਸਿੰਘ ਢੀਡਸਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ)

ੳ. ਸਾਹਿਤਕ ਰੂਪ : ਨਿਕਾਸ ਅਤੇ ਵਿਕਾਸ

ਅ. ਪ੍ਰਵਿਰਤੀਆਂ (ਨਿਕਾਸ/ਵਿਕਾਸ/ਪ੍ਰਵਿਰਤੀਆਂ)

ਸੈਕਸ਼ਨ- ਬੀ

ਪੰਜਾਬੀ ਨਾਟਕ:

ਚੰਦਨ ਦੇ ਓਹਲੇ (ਪਾਲੀ ਭੁਪਿੰਦਰ, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ)

ਲੇਖਕ ਦਾ ਜੀਵਨ ਤੇ ਰਚਨਾ/ਵਿਸ਼ਾ/ਸਾਰ/ਨਾਟਕ ਕਲਾ

ਸੈਕਸ਼ਨ- ਸੀ

ਸਾਹਿਤ ਦੇ ਰੂਪ:

ਰੇਖਾ ਚਿੱਤਰ, ਸੰਸਮਰਣ, ਸਫ਼ਰਨਾਮਾ, ਨਿਬੰਧ, ਜੀਵਨੀ, ਡਾਇਰੀ, ਸਵੈ-ਜੀਵਨੀ, : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਤੁੱਤ

ਸੈਕਸ਼ਨ- ਡੀ

ਵਿਹਾਰਕ ਆਲੋਚਨਾ :

ੳ. ਵਿਹਾਰਕ ਆਲੋਚਨਾ : ਸਿੱਧਾਂਤਕ ਪੱਖ

ਅ. ਵਿਹਾਰਕ ਆਲੋਚਨਾ (ਸ਼ਰੋਮਣੀ ਪੰਜਾਬੀ ਕਾਵਿ ਭਾਗ I ਅਤੇ II ਦੇ ਪ੍ਰਸੰਗ ਵਿੱਚ)

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਰਾਜਿੰਦਰ ਸਿੰਘ ਸੇਖੋਂ, ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਨਵੀਨ ਇਤਿਹਾਸ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ।
2. ਕਿਰਪਾਲ ਸਿੰਘ ਕਸੇਲ, ਪਰਮਿੰਦਰ ਸਿੰਘ, ਪੰਜਾਬੀ ਸਾਹਿਤ ਦੀ ਉਤਪਤੀ ਤੇ ਵਿਕਾਸ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ।
3. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਸਾਹਿਤ ਦੇ ਰੂਪ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
4. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਸਾਹਿਤ ਕੋਸ਼ : ਪਰਿਭਾਸ਼ਕ ਸ਼ਬਦਾਵਲੀ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
5. ਜੀਤ ਸਿੰਘ ਜੋਸ਼ੀ, ਅਧਿਐਨ ਤੇ ਅਧਿਆਪਨ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
6. ਸਤੀਸ਼ ਕੁਮਾਰ ਵਰਮਾ, ਪੰਜਾਬੀ ਨਾਟਕ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
7. ਸਤੀਸ਼ ਕੁਮਾਰ ਵਰਮਾ, ਪੰਜਾਬੀ ਨਾਟਕ ਬੀਜ ਤੋਂ ਬਿਰਖ ਤਕ, ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
8. ਪਾਲੀ ਭੁਪਿੰਦਰ, ਪਿਆਸਾ ਕਾਂ (ਭੂਮਿਕਾ), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
9. ਸਤਿੰਦਰ ਸਿੰਘ, ਵਿਹਾਰਕ ਸਮੀਖਿਆ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
10. ਮਨਜੀਤ ਕੌਰ ਕਾਹਲੌਂ, ਚੰਦਨ ਦੇ ਓਹਲੇ ਇੱਕ ਵਿਸ਼ਲੇਸ਼ਣ, ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

SEMESTER-VI

FUNCTIONAL PUNJABI (VOCATIONAL) (ਪੰਜਾਬੀ ਪ੍ਰਕਾਰਜ) (ਫੰਕਸ਼ਨਲ)

ਪੰਜਾਬੀ ਵਿਚ ਕੰਪਿਊਟਰ ਦੀ ਵਰਤ ਦਾ ਅਭਿਆਸ

ਸਮਾਂ : 2 ਘੰਟੇ

ਕੁਲ ਅੰਕ : 100

ਪ੍ਰਕਟਾਕਲ ਅੰਕ : 80

ਮੌਖਿਕ ਪ੍ਰੀਖਿਆ : 20

(ਪ੍ਰਕਟਾਕਲ)

ਸੈਕਸ਼ਨ-ਏ

ਪੰਜਾਬੀ ਵਰਤ ਪਰੋਸੈਸਿੰਗ: ਸਿਸਟਮ ਖਲੂਣਾ, ਸਿਸਟਮ ਦੀ ਚੋਣ: ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀ ਚੋਣ-
ਆਮ੍ਰਤ ਲਿਪੀ, ਗੁਰਬਾਣੀ ਲਿਪੀ, ਗੁਰਬਾਣੀ ਕਲਮੀ, ਫਾਇਲ ਬਨਾਉਣੀ, ਸਮਗਰੀ ਦੀ ਪ੍ਰਾਕਰਤਾ
ਅਨੁਸਾਰ ਪਨ ਦੀ ਸੈਟਿੰਗ, ਡਾਇਰੈਕਟਰੀ ਬਨਾਉਣੀ ਅਤੇ ਫਾਇਲ ਨੂੰ ਸੇਵ ਕਰਨਾ।

ਸੈਕਸ਼ਨ-ਬੀ

ਹਾਰਡ ਡਿਸਕ ਤ ਫਲੋਪੀ ਜਾ ਪੈਨ-ਡਰਾਈਵ ਅਤੇ ਜਾ ਫਲੋਪੀ ਤੇ ਪੈਨ-ਡਰਾਈਵ ਤ ਹਾਰਡ
ਡਿਸਕ ਉਤੇ ਸਮੱਗਰੀ ਪੈਨ-ਡਰਾਈਵ 'ਤੇ ਤਬਦੀਲ ਕਰਨੀ, ਫੀਡ ਕੀਤੀ ਸਮਗਰੀ ਦਾ ਪ੍ਰਾਵਊ
ਅਤੇ ਪ੍ਰਟ ਲੈਣਾ।

ਸੈਕਸ਼ਨ-ਸੀ

ਰੀਸੈਟਿੰਗ, ਕੁਰੈਕਸ਼ਨ ਅਤੇ ਡਬਲ ਸਕਰਿਪਟਿੰਗ ਦਾ ਅਭਿਆਸ ਕਰਨਾ, ਫਟ ਦਾ ਆਕਾਰ
ਚੁਣਨਾ, ਫੀਡ ਕੀਤੀ ਸਮੱਗਰੀ ਦੇ ਭਾਗਾਂ ਨੂੰ ਇਕ ਥਾ ਤ ਦੂਜੀ ਥਾ ਲਿਜਾਣਾ ਅਤੇ ਪੈਰਾ ਸੈਟਿੰਗ ਕਰਨਾ।

ਸੈਕਸ਼ਨ-ਡੀ

ਪੰਜਾਬੀ ਦੀ ਵੈਬਸਾਈਟ ਖਲੂਣਾ, ਪੰਜਾਬੀ ਵਿਚ ਈ.ਮੇਲ ਭੇਜਣ ਦਾ ਅਭਿਆਸ ਕਰਨਾ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਸੀ. ਪੀ. ਕੰਬੋਜ, ਕੰਪਿਊਟਰ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ, ਯੂਨੀਸਟਾਰ ਬੁੱਕਸ, ਚੰਡੀਗੜ੍ਹ।
2. ਦਿਲਰਾਜ ਸਿੰਘ (ਸੰਪਾ.), ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਤੇ ਕੰਪਿਊਟਰ ਦੀਆਂ ਯੋਗਤਾਵਾਂ, ਯੂਨੀਸਟਾਰ ਬੁੱਕਸ, ਚੰਡੀਗੜ੍ਹ।

SEMESTER-VI

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

ਸਮਾਂ: 3 ਘੰਟੇ

ਕੁਲ ਅੰਕ: 50

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

**ਪਾਠ-ਕ੍ਰਮ
ਸੈਕਸ਼ਨ-ਏ**

ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦਾ ਪਿਛੋਕੜ
ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੀ ਭੂਗੋਲਿਕ ਸਥਿਤੀ
ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੇ ਨਿਖੜਵੇਂ ਲੱਛਣ

ਸੈਕਸ਼ਨ-ਬੀ

ਪੰਜਾਬ ਦੇ ਮੇਲੇ
ਪੰਜਾਬ ਦੇ ਤਿਉਹਾਰ
ਪੰਜਾਬ ਦੇ ਪ੍ਰਮੁੱਖ ਧਾਰਮਿਕ ਸਥਾਨ

ਸੈਕਸ਼ਨ-ਸੀ

ਜਨਮ ਨਾਲ ਸੰਬੰਧਿਤ ਰੀਤਾਂ-ਰਸਮਾਂ
ਵਿਆਹ ਨਾਲ ਸੰਬੰਧਿਤ ਰੀਤਾਂ ਰਸਮਾਂ
ਮੌਤ ਨਾਲ ਸੰਬੰਧਿਤ ਰੀਤਾਂ ਰਸਮਾਂ

ਸੈਕਸ਼ਨ-ਡੀ

ਪੰਜਾਬ ਦਾ ਖਾਣ ਪੀਣ
ਪੰਜਾਬ ਦਾ ਪਹਿਰਾਵਾ
ਪੰਜਾਬ ਦੇ ਲੋਕ ਵਿਸ਼ਵਾਸ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਗੁਰਬਖਸ਼ ਸਿੰਘ ਫਰੈਂਕ, ਸਭਿਆਚਾਰ ਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਉਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
2. ਗੁਰਬਖਸ਼ ਸਿੰਘ ਫਰੈਂਕ, ਸਭਿਆਚਾਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ, ਦੀ ਪੰਜਾਬੀ ਰਾਈਟਰਜ਼ ਕੋਆਪਰੇਟਿਵ ਸੋਸਾਇਟੀ ਲਿਮਟਿਡ, ਲੁਧਿਆਣਾ।
3. ਭੁਪਿੰਦਰ ਸਿੰਘ ਖਹਿਰਾ, ਲੋਕਧਾਰਾ ਭਾਸ਼ਾ ਅਤੇ ਸਭਿਆਚਾਰ, ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ, ਪਟਿਆਲਾ।
4. ਜਸਵਿੰਦਰ ਸਿੰਘ, ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਪਛਾਣ ਚਿੰਨ੍ਹ, ਯੂਨੀਤ ਪ੍ਰਕਾਸ਼ਨ, ਪਟਿਆਲਾ।
5. ਜੀਤ ਸਿੰਘ ਜੋਸ਼ੀ, ਸਭਿਆਚਾਰ : ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਉਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
6. ਜੀਤ ਸਿੰਘ ਜੋਸ਼ੀ, ਲੋਕ ਕਲਾ ਅਤੇ ਸਭਿਆਚਾਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
7. ਜੀਤ ਸਿੰਘ ਜੋਸ਼ੀ, ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਬਾਰੇ, ਦੀ ਪੰਜਾਬੀ ਰਾਈਟਰਜ਼ ਕੋਆਪਰੇਟਿਵ ਸੋਸਾਇਟੀ ਲਿਮਟਿਡ, ਲੁਧਿਆਣਾ।
8. ਜਗੀਰ ਸਿੰਘ ਨੂਰ, ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ : ਮੂਲ ਪਛਾਣ, ਨੈਸ਼ਨਲ ਬੁੱਕ ਟਰੱਸਟ, ਨਵੀਂ ਦਿੱਲੀ।

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 <u>कागज/स्मरण</u> पत्र भेज दें
46.	Passed for payment	भुगतान के लिए पास किया गया
47.	Reminder may be sent	<u>अनुस्मारक/स्मरण-पत्र</u> 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

Function Hindi (Vocational)

fglUnh QD' kuy ½oksd's kuy½
Hkkjr l jdkj dh jktHkk"kk uhfr vkj dEI; Wj

l e; % 3 ?k&/s

i w kk&d% 60

Instructions for the Paper Setters:-

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

l D' ku& ,

fu/kkfjr i kB; Øe%

(क) कार्यालयी अनुदेश (शब्दावली साथ संलग्न है)

l D' ku&ch

(ख) Hkkjr l jdkj dh jktHkk"kk uhfr

- राजभाषा हिन्दी
- राजभाषा हिन्दी को लागू करने संबंधी प्रावधान
- अधिनियम 343
- अधिनियम 344
- अधिनियम 345
- अधिनियम 346
- अधिनियम 347
- अधिनियम 348
- अधिनियम 349
- अधिनियम 350
- अधिनियम 351

l D' ku&l h

½x½ jktHkk"kk ds l c&k ea l fefr

- राजभाषा आदेश – 1960
- राजभाषा अधिनियम– 1963
- राजभाषा हिन्दी –प्रोत्साहन योजना

l D' ku&Mh

½?k½ dEI; Wj vkj fglUnh

- कम्प्यूटर– अर्थ, परिभाषा और गुण
- कम्प्यूटर की रूप–रेखा
- कम्प्यूटर का उपयोग और क्षेत्र
- कम्प्यूटर में राजभाषा हिन्दी
- कम्प्यूटर के प्रकार और प्रोग्रामिंग भाषाएँ

l gk; d i l r d s %

- 1) पत्रकारिता एवं जनसंचार, एन.सी. पंत, कनिष्क पब्लिशर्स डिस्ट्रीब्यूटर्स, नई दिल्ली, 2004
- 2) साहित्य–विमर्श, श्रुतिकाल, साहित्य सदन, देहरादूर, 1969
- 3) राजभाषा हिन्दी, कल, आज और कल, डॉ. सुरेन्द्र शर्मा, आधार प्रकाशन, पंचकूला, 2012
- 4) कम्प्यूटर और हिन्दी, प्रो. हरिमोहन, तक्षशिला प्रकाशन, नई दिल्ली, 2016

SEMESTER-VI
Functional Hindi (Vocational)

QD'kuy fglnh ½oksd's kuy½
i z; ksx vksj ekf [kdh

i wkkzd% 40

- विद्यार्थियों को प्रति समस्तर 40 अंक की प्रयोग पुस्तिका तैयार करनी होगी। जिसमें 20 अंक मौखिक परीक्षा के और 20 अंक प्रयोग-पुस्तिका के होंगे।
- प्रयोग-पुस्तिका का आकलन और मौखिक-परीक्षा गुरु नानक देव विश्वविद्यालय द्वारा निर्धारित परीक्षा-नियमों के अनुसार की जाएगी।

i z; ksx ds fo"k;

- कम्प्यूटर में हिन्दी कुंजीपटल की जानकारी देना।
- कम्प्यूटर पर हिन्दी के कोई दो सॉफ्टवेयर की जानकारी देना।
- कम्प्यूटर में राजभाषा हिन्दी के प्रयोग के विविध क्षेत्रों की जानकारी।
- कम्प्यूटर पर राजभाषा हिन्दी के विभिन्न वेबसाइट्स (कार्य) की पी.पी.टी. तैयार करना।

i s j & 1] QD'kuy fglnh (fu/kkfj r vups'k)
([k) dk; kly; h vups'k

1.	Above mentioned	उपरलिखित
2.	According to	के अनुसार
3.	Adjourn Sine die	अनिश्चित काल के लिए
4.	Acting in good faith	सद्भाव से कार्य करते हुए
5.	Action may be taken as proposed	यथा प्रस्तावित कार्यवाही की जाए
6.	Acts of Commission & Ommission	कृताकृत
7.	After adequate consideration	समुचित विचार के बाद
8.	Against public interest	लोकहित के विरुद्ध
9.	Aid and advice	सहायता और सलाह
10.	A Line of note is placed below	संक्षिप्त नोट नीचे प्रस्तुत है
11.	An interim	अंतरिम, अस्थायी
12.	Aproved as proposed	यथाप्रस्ताव अनुमोदित
13.	As above	जैसा उपर दिया गया है

14.	As desired	इच्छानुसार, आज्ञानुसार
15.	As directed	निदेशानुसार
16.	As far as possible	यथासंभव
17.	As a last resort	अंतिम उपाय के रूप में
18.	As a matter of fact	यथार्थ/वस्तुतः
19.	As may be necessary	आवश्यकतानुसार
20.	As per details below	निम्नलिखित के अनुसार
21.	As regards	के संबंध में/ जहां तक संभव हो सके
22.	As the case may be	जैसी स्थिति हो
23.	Attention is invited to	की ओर ध्यान आकर्षित किया जाता है
24.	Background of the case	मामले की पृष्ठभूमि
25.	Beg to state	निवेदन है
26.	Benefit of doubt	संदेह लाभ
27.	Boarding and lodging	आवास और भोजन
28.	By all means	अवश्यमेव, निस्संदेह
29.	By any means	किसी प्रकार से
30.	By order	के आदेश से
31.	Case has been closed	मामला समाप्त
32.	Come into force	लागू होना
33.	Deemed to be	समझा जाए
34.	Detrimental in interest of	के हित में हानिकारक
35.	Do the needful	आवश्यक कार्यवाई- हेतु
36.	Duly filled in	विधिवत् भरा हुआ
37.	Duly verified	विधिवत् सत्यापित
38.	Early reply is solicited	शीघ्र उत्तर की प्रार्थना है
39.	Eligibility is certified	पात्रता प्रमाणित
40.	Errors and omissions	भूल चूक
41.	Expedite action	कार्यवाही शीघ्र करें

42.	For early compliance	शीघ्र अनुपालन करें
43.	For favour of necessary action	आवश्यक कार्यवाई हेतु
44.	For immediate action	त्वरित कार्यवाई हेतु
45.	For or against	पक्ष और विपक्ष में
46.	For perusal	ध्यान से अध्ययनार्थ
47.	For the present	फिलहाल
48.	From pre-page	पिछले पृष्ठ से
49.	furnish details	विवरण प्रस्तुत करें
50.	Further report is awaited	अगला प्रतिवेदन प्रतीक्षित
51.	Give necessary facilities	आवश्यक सुविधाएं दें
52.	Hard and fast rules	पक्के नियम
53.	Have the honour to say	सादर निवेदन है
54.	In camera	बंद कैमरे में
55.	In lump sum	एकमुश्त, एक बार में
56.	In due course	यथाविधि
57.	In reply to	के उत्तर में
58.	Inter alia	अन्य बातों के साथ-साथ
59.	Inter se	परस्पर / आपस में
60.	In toto	पूरी तरह, सम्पूर्णतः
61.	In view of	को ध्यान में रख कर / की दृष्टि से
62.	Keep in abeyance	प्रस्थगित रखा जाए
63.	Kindly Acknowledge receipt	कृपया पावती दें
64.	Kindly confirm	कृपया पुष्टि करें
65.	Kindly consider	कृपया विचार करें
66.	May be cancelled	निरस्त किया जाए
67.	May be considered	विचार किया जाए
68.	Matter of facts	तथ्यतः / तथ्य की बात
69.	Necessary action may be taken	आवश्यक कार्यवाई करें

70.	Note Beno (N.B.)	विशेष ध्यान दें
71.	Not Satisfactory	असंतोषजनक
72.	Okey (OK)	सब ठीक, अच्छा
73.	On behalf of	की ओर से
74.	Out to day	आज ही
75.	Put up	प्रस्तुत करें
76.	Reference to above	उपरिनिर्दिष्ट
77.	Self explanatory	स्वतः स्पष्ट
78.	So far as possible	यथा संभव
79.	So long as	यहां तक कि
80.	Status quo	यथा पूर्व स्थिति
81.	Then and there	तत्काल वही
82.	This is to certify	प्रमाणित किया जाता है
83.	Through over sight	नजर चूकने से, भूल जाने से
84.	Uncalled for	अनामंत्रित, अनाहूत, अनुचित
85.	Under mentioned	निम्नलिखित
86.	Until further order	अगले आदेश तक
87.	Up-to-date	अद्यतन
88.	Up-to the mark	स्तरीय
89.	Verified and found correct	सत्यापित किया और सही पाया
90.	Without fail	अवश्यमेव
91.	With reference to	के संदर्भ में
92.	With retrospective effect	प्रभाव-सहित
93.	Yours faithfully	भवदीय

SEMESTER-VI

Hindi Patrakarita (Vocational)

fglnh i =dkfj rk ½oksdls kuy½

fglnh i =dkfj rk & dEl; Wj vksj bUVjuS/

I e; % 3 ?k/s

i w kkd% 60

Instructions for the Paper Setters:-

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

fu/kkfjr i kB; Øe%

I D'ku&

कम्प्यूटर शब्दावली (हिन्दी से अंग्रेजी)

कम्प्यूटर शब्दावली (अंग्रेजी से हिन्दी) (शब्दावली साथ संलग्न है)

I D'ku&ch

dEl; Wj & i fjp; vksj vFkl

- कम्प्यूटर- संतुलित परिभाषा (अनुदेश तथा प्रोग्राम, डेटा, सूचना तथा सूचनापुर्नप्राप्ति, ज्ञान)
- कम्प्यूटर- गुण
- कम्प्यूटर- साफ्टवेयर
- प्रोग्रामिंग भाषाएँ
- प्रकार
- प्रोसेसर (Processor)

I D'ku&l h

bUVjuS/ & i fjp;] bfrgkl vksj fodkl

- कार्य प्रणाली
- सम्पर्क सूत्रों का परिचय
- ई-मेल
- ई-मेल भेजने की प्रविधि
- एक्सप्लोरर(Explorer)
- नेट-स्केप
- लिंग, डाउनलोडिंग व अपलोडिंग

I D'ku&Mh

dEl; Wj & : i js[kk

- कम्प्यूटर- उपयोगिता और क्षेत्र
- इन्टरनेट - साफ्टवेयर का वर्गीकरण
- हिन्दी के प्रमुख साफ्टवेयर
- इन्टरनेट - लाभ

I gk; d i qrd% %

- 1) कम्प्यूटर क्या? क्यों? और कैसे? अमित कुमार मिश्र, पांडुलिपि प्रकाशन, दिल्ली, 2005
- 2) हिन्दी पत्रकारिता रीति, नीति, एवं वृत्ति, डॉ. जितेन्द्र वत्स, निर्मल पब्लिकेशन्स, दिल्ली, 2008

SEMESTER-VI
Hindi Patrakarita (Vocational)
fglnh i =dkfj rk %oksd's kuy%
i z; ksx vksj ekf [kdh

i wkkz d% 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;

- कम्प्यूटर की आंतरिक व बाहरी इकाई का ज्ञान।
- कम्प्यूटर के केंद्रीय संसाधन की ईकाई।
- इन्टरनेट एक्सप्लोरर (Processor, C.P.U.)के प्रयोग की विधि।
- हिन्दी की ऑनलाईन पत्र – पत्रिकाओं का विवरण देना।

dEl; Wj 'kCnkoyh

fglnh I s vaxsth vaxsth I s fglnh

vcdk{kj	Character	Abstracting Periodicals	I kjhdj .k if=dk
vcdk{kj dqt; ka	Character Keys	Access Path	vfhkxe iHk
v{kj	Alphabet	Accession	voktI r
vtrogr- Js kh , dhjdj .k	Very Large Scale Integration	Accession Number	voktI r I q; k
vuplyu	Compatibility	Accession Register	voktI r i tdk
vup@vup.kh	Index	Advanced Technology	mUr rdud
vup@vup.kh	Indexing	Alphabet	o. k
vup@vup.kh if=dk	Indexing Periodical	Alphanumeric	o. kkd
vupNn	Paragraph	Analog	I n" k
vupknu	Approval	Analogy	I kn" ;
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vup@vup.kh	Reminder	Approach	mi xe@vfhkxe

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–VI) (Batch 2020-23)
(Faculty of Languages)

vfhkKki d	Identifier	Approval	vupeknu
vfhkyslk	Record	Architecture (Computer)	cl; Wj I j puk
vojksk	Barrier	Arithmetic Logical Unit	xt.krh; rktdd , dd
vokfir	Accession	Artificial Intelligence	df=e eskk
vokfirdj.k	Accessioning	Assemble	, d=
vokfir i ttdk	Accession Register	Assimilate	vkRel kr
vokfir I d; k	Accession Number	Automatic	Lopkyu
v"Vv/kkj h	Octal	Average	vkI r
v"Vv/kkj h I d; k iz.kkyh	Octal Number System	Barriers	vojksk
v) L dMUVj vk/kktjr	Semi Conductor	Barriers of Information	I puk I pkj ds
VktLVj	Based Transistor	Communication	vojksk
vkidd	Numerical	Batch Processing Technique	c p I d k/kd rdud
vkrtjd	Internal	Bibliographical Detail	xkkRed tooj.k
vkrtjd Letr	Internal Memory	Bibliography	xkl ph
vkL; k	Title	Binary Digit	tjvk/kkj h vrd
vkRel kr	Assimilate	Binary System	tjvk/kkj h iz.kkyh
vkRel krtidj.k	Assimilation	Book Selection Slip	i rd p; u i ph
vkgeku	Call	Borrowing Library	_.kh i rky;
vkgeku I d; k	Call Number	Bridge Language	i gy Hkk"kk
bkrktk	Implication	Calculating Device	x.kd mi dj.k
		Call	vkgeku
		Call Number	vkgeku I d; k
		Capability	I ket; L
		Cartridge	clVET Vj

SEMESTER-VI**PHYSICAL EDUCATION
(THEORY)****Time 3 hours****Maximum mark: 100
Theory mark: 60
Practical Marks: 40****Instructions for the Paper Setters:-**

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

SECTION-A

1. 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

SECTION-B

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.

SECTION-C

6. Meaning and Importance of Kinesiology.
7. Joints, Muscles, their types and Movements.
8. Therapeutic Exercises, their classification and benefits.

SECTION-D

9. Components of Physical Fitness, Speed, Strength, Endurance, Agility and Flexibility.
10. Training Methods; Circuit, Interval, Fartlek, Weight-Training and Cross Country.
11. 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