Syllabi for Entrance Test in respect of the Courses not offered at the Undergraduate Level

i) LLB Course

a) LLB (3 year course)

The question paper shall comprise two parts, part (A) and part (B) Whereas Part A shall cover general knowledge (40 questions), Part B shall be designed to assess the Legal Aptitude of the candidates (20 Questions of General Nature). The same scheme shall hold for the Entrance Test for admission to the "P.G. Diploma in Human Rights and Duties Education"

b) BA, LLB. (5 year course)

The eligible candidates shall have to appear in the entrance test comprising of Sections A & B. Section A shall carry 30 questions with four multiple choice answers based on General Knowledge and 10 questions on General Reasoning. Section B shall have 20 questions with four multiple choice answers based on Legal Aptitude to assess the interests of the candidates in law and law related issues.

ii) PGDCA (Post Graduate Diploma in Computer Applications)

The break-up of the question papers shall be as follows:

General Knowledge:	09 Questions
Logical Reasoning:	17 Questions
Mathematics (10+2 Standard):	17 Questions
Computer Fundamentals:	17 Questions

iii) MCA (Master in Computer Applications)

The eligible candidates shall be required to appear in an Entrance Test (to be advertised in national dailies) which shall be conducted at the University Campus and at the University of Jammu, Jammu. The break-up of the question papers shall be as follows:

General English Comprehension:	09 Questions
Logical Reasoning:	17 Questions
Mathematics (10+2 Standard):	17 Questions
Computer (BCA 1st, 2nd & 3rd standard):	17 Questions

iv) MSc (Biochemistry)

- Laws of Thermodynamics
- Concepts of heat of reaction, enthalpy, entropy
- Electro negativity
- Concepts of chemical bonding
- Electron displacements
- Dipole-dipole interactions: hydrogen bond, vander-waals forces, hydrophobic and hydrophilic interactions
- Isomerism.
- Electrochemistry.
- Acid base equilibria
- Soaps and detergents
- Essential and trace elements in biological systems
- Toxicity of metals and the reasons for toxicity.
- Use of radioisotopes as a tracer in chemical reactions, in agriculture, industry and medicine
- Spectroscopy
- Photosynthesis and its mechanism
- Significance and mechanism of respiration

- Importance of water to plant life
- Transpiration mechanism
- Methods of study of macro and micro nutrients availability, uptake and role
- Ecology and environmental conservations
- Air, water pollution and their control, renewable and non renewable resources, protection, conservation & management
- Structure, transmission and role of viruses
- Bacterial morphology and their growth
- Applications of microbiology
- Structure, classifications, properties and importance of Proteins, enzymes, lipids, nucleic acids and carbohydrates,
- Cell cycle and its different stages
- Chromosome structure, hereditary, linkage & recombination
- Mutations
- Variation in chromosome number
- DNA as genetic material, replication, transcription, Genetic code, mechanism of protein synthesis and regulation
- Various structural levels of nucleic acids
- Restriction and modification system
- Transformation, Transduction
- Cell, tissue and organ culture, methods and practical applications
- Introduction, scope and significance of biotechnology
- Elementary idea of Genetic Engineering
- Concepts of evolution, ecosystem, nitrogen, phosphorus and carbon dioxide cycle
- Host Parasite relationship
- Historical perspective, Scope, and significance of developmental biology
- Morphology of cell- prokaryotic and eukaryotic.
- Structure, composition and functions of cell wall, plasma membrane, mitochondria, plastids, endoplasmic reticulum, nucleus, nucleoli, lysosomes and ribosomes.
- Blood components and their functions
- Composition and function of lymphatic system.
- Overall anatomy and function of various components of human circulatory, respiratory, excretory, nervous, digestive and endocrine system
- Glycolysis, TCA cycle, Pentose phosphate pathway, Gluconeogenesis, Glycogen synthesis and breakdown,
- ß-oxidation of fatty acids, metabolism of fatty acid, triacylgycerol and cholesterol
- Electron transport chain and Oxidative phosphorylation
- Transamination and deamination reactions, urea cycle, metabolism of Phenylalanine, Tyrosine, Tryptophan.
- Metabolism of purines and pyrimidines
- Basic concepts of Immunology
- Basic concepts of nutrition
- Definition and scope of clinical biochemistry in diagnosis
- Enzyme patterns in health and disease states with reference to plasma lipase, amylase, cholinesterase, alkaline and acid phosphatase, SGOT, SGPT, LDH and CPK, Kidney function and liver function tests.

v) MSc (Clinical Biochemistry)

General introduction to computers: Different components of a computer, hardware and software, input output devices, introduction to computer languages, programming and operating systems.

Biometrics and Biostatistics: Statistical data,(Primary and secondary data), Grouped data (Frequency distribution), Measures of central tendency, mean, median and mode, Measures of dispersion, standard deviation, mean deviation, variance, coefficient of variation, Chi- square distribution.

Clinical Biochemistry: Review of Units and abbreviations used in expressing concentrations and standard solutions, quality control, collection and preservation of biological fluids, Normal values for important constituents in blood and urine. clearance tests, Enzyme patterns in health and disease in case of plasma lipase, amylase, cholinesterase, alkaline and acid phosphatase, SGOT, SGPT, LDH,CPK. Hypo and hyper thyroidism and Goiter, Hypo and hyper pituitarism, Anemia, Jaundice, Kidney, Liver function tests, Rheumatoid arthritis, Diabetes mellitus, Glucose insulin tolerance tests, Glycogen storage diseases, Role of LDL and HDL in development of premature coronary heart diseases, Inborn errors of amino acid metabolism, Gout, Gassian distribution Disposal of hazards wastes like radioactive, biomedical and chemical wastes.

Human Physiology and anatomy: components and functions of Blood and lymph, Basic anatomy, organization and physiological functions of respiratory, excretory, digestive, endocrine and nervous system, Vision cycle

Biochemistry: Definition, classification, structures, reactions, biological significance of carbohydrates, lipids, proteins, nucleic acids and their derivatives. Mutarotation, various levels of structure in protein architechture. Denaturation and renaturation, Cholesterol, sex hormones and corticosteroids

Enzymology: History, general characteristics, nomenclature and classifications of enzymes, enzyme activity and factors affecting enzyme activity, Competitive and uncompetitive inhibition, allosteric enzymes

Cell Biology: Morphology of cell, structure and functions of cell organelles (Plasma memberane, endoplasmic reticulum, nucleus, mitochondria, lysosomes, peroxysome,Golgi apparatus, ribosomes, cyotskelatal elements, choloroplast, cell wall., Historical perspective and functions of biomembranes, Nutrient transport across biomemberane., cellular differentiation and biology of cancer (Basic Concepts)

Nutrition: Basic concepts of energy expenditure, Units of energy, direct and indirect measurement of energy expenditure, BMR and its measurements, Specific dynamic action, protein energy malnutrition, physiology and nutrition of vitamins and minerals, preservation and quality of foods.

Metabolism: Glycolysis, TCA Cycle, gluconeogenesis, glycogenolysis, glycogenesis, pentose phosphate pathway, electron transport chain and oxidative phsosphorylation, â- oxidation of fatty acids, Biosynthesis of Fatty acids, Ketone bodies, Urea cycle, general pathways for degradation and synthesis of amino acids, Regulation of purine and pyrimmidine metabolism

Molecular Biology: Basic concepts of genetic information, central dogma of molecular biology, nucleic acids as carrier of genetic information, Tm and buoyant density, salient features of prokaryotic, eukaryotic and viral genomes, Secondary and tertiary structure of DNA, Restriction modification system, Structure, classification and properties of RNA, Cot value, Process of replication in prokaryotes and eukaryotes, post transcriptional modifications, Genetic code, mechanism of translation, regulation of gene expression, post translational modifications.

Viruses and Bacteria: Classification, structure and economic importance, Transmission of Viruses and role of vectors, Microbial antibiotics in relation to control of disease, Host parasite relationship

Genetics: Mendel and his experiment, principles of segregation, independent assortment, test cross and back cross, non mendelian inheritance, Chromosome organization, and various chromosome alterations; variation in chromosome number, aneuploidy, polyploidy, autopolyploids and allopolyploids. DNA damage and repair (Basic Concepts), Cell cycle, mitosis and meiosis

Immunology: History, scope and significance of immunology, Basic concepts of Specific and Non specific immune responses, Immunoglobulins

Scope of Biotechnology: Cell, tissue and organ culture(Methods and practical applications) Elementary idea of genetic engineering

Chemistry concepts: Oxidation reduction reactions, reduction potential and their uses in volumetric analysis, redox indicators, Concepts of acids and bases, dipole- dipole interactions, Hydrogen bonds, vanderwaals forces and their significance with respect to biological systems, electophiles and nucleophiles, Concepts and types of Stereo, optical and geometrical isomerism. Chemical kinetics and catalysis, different orders of reaction, Concepts of activation energy and reaction rates, Laws of Photochemistry, photochemical reactions, photosynthesis, phosphorescence, flurosence, chemiluminescence and bioluminisecence. Spectroscopy: UV, Visible, infra red, NMR, Laws of thermodynamics .

vi) MSc (Environmental Science)

The question paper containing 60 multiple answer type questions for the entrance examination for admission to M. Sc. Environmental Science will be broadly based on the below mentioned 60 topics drawn from different branches of science related to the Environment. The paper will be spread over the whole syllabus, with one question from each topic.

a. Earth Science

1. Earth : its origin and evolution
2. Soil types in India
3. Soil erosion and conservation of soil
4. Types of Rocks and Weathering of Rocks
5. Major River systems of India with special reference to Kashmir.
6. World population, its growth, density and distribution and impact on environment
7. Mineral and Power Resources in India
8. Physiography and Mineral Resources of Jammu & Kashmir
9. Natural Disasters
10. Major man-induced disasters: Bhopal and Chernobyl Disaster
11. Structure and Composition of Atmosphere.
12. Structure of earth.
13. Soil formation and soil profile.
14. Forest resources of India
15. Desertification
16. Climate of India.

b. Physical and Chemical Science

17. Water - physical characteristics, buffering capacity
18. Essential and trace elements in living systems
19. Natural and synthetic polymers and their use
20. Bio-molecules - chemical components of cells.
21. Bio-geochemical cycles – carbon, nitrogen and phosphorus
22. Hydrological cycle and global water balance
23. Toxicity of Heavy metals.
24. Drugs–Synthesis and uses of aspirin, paracetamol and phenylbutazone

c. Life Science

25. Origin of life
26. Photosynthesis
27. Plant growth hormones.
28. Dormancy and seed germination

29. Respiration
30. Structure of DNA
31. Genetic engineering
32. Ecosystem: Structure and Types
33. Types of succession
34. Plants and animals in use of man
35. Atmospheric pollution: causes, consequences and control.
36. Aquatic pollution: causes, consequences and control.
37. Lake types
38. Primary, secondary and tertiary treatment of Sewage treatment plant
39. Land pollution: causes, consequences and control
40. Management of solid wastes
41. Forest degradation and conservation measures
42. Water borne diseases
43. Pesticide problem
44. Noise pollution
45. Non-renewable energy resources: Fossil fuels (coal and petroleum)
46. Eco- friendly products and techniques; non polluting energy sources
47. Wild life of Jammu and Kashmir.
48. Threatened animals and plants of India and their Conservation
49. Pathogenicity and control of human parasites
50. IUCN Categories of threatened species
51. Zoo-geographical divisions of the world and their important flora and fauna
52. Role of Microbes in the environment
53. Global Environmental issues: ozone depletion and global warming.
54. Acid rain and Smog
55. International Conventions: Stockholm, Earth summit, Montreal and Kyoto protocol.
56. Environmental Education

d. Mathematical Science

57. Measures of central tendency: Mean, Median and Mode
58. Statistical methods; mean deviation; coefficient of variation and standard deviation
59. Correlation and Regressions
60. Probability

vii) MLIS (Master of Library & Information Sciences)

MLIS Entrance Test will comprise of a question paper consisting of sixty objective type questions (multiple choice) of one hour duration examining therein understanding of basic knowledge of different subjects, aptitude for libraries, English language comprehension, basic knowledge of computer and communication skills, current affairs and reasoning.

The distribution of questions will be as under:

a) Basic understanding of different subjects: 30 questions
b) Aptitude for libraries: 10 questions
c) English Language comprehension: 05 questions
d) Reasoning: 05 questions
e) Basic computer and Communication skills: 05 questions
f) Current affairs: 05 questions

viii) M.Sc. (Biotechnology)

The entrance test shall comprise:

General science: Basic concepts of chemistry, physics, mathematics, computer science.

Bio-molecules: Carbohydrates, Lipids, Proteins, Vitamins and nucleic acids- structure and function

Cell biology: Prokaryotic and eukaryotic cell-structure and organelle functions, cell cycle progression and regulation

Metabolism: Carbohydrate, Lipids, amino acids and nucleotides turn over and its regulation, Metabolic disorders

Biological oxidations: Oxidation-reduction potentials, electron acceptors and donors in plants and animals. ATP synthesis-oxidative and photo-phosphorylation.

Molecular Biology: prokaryotic and eukaryotic Replication, Transcription, and Translation. Concept of Recombinant Technology

Immunology: Structure and functions of immunoglobulin, Antigen and super antigens. Innate and adaptive immunity

Techniques: Principles, types and applications of, chromatography, centrifugation, electrophoresis, spectrophotometery

Genetics: Mendelian laws of inheritance and their application, linkage and crossing over, gene mapping, theories of mutation and evolution, genetic disorders

Animal physiology: Introduction to homeostasis, physiology and development of Digestive, circulatory, respiratory, execratory, reproductive and nervous system. Endocrine and exocrine system: hormone diversity and action

Plant physiology: Transport across plant cell, Transpiration, Mineral uptake, Respiration Photosynthesis, Flowering, Growth and development.

Microbiology: Structure and organization of microbial cells, Microbial growth, Viral & Bacterial Genetic systems, Host parasite relationship: Normal microflora, Antimicrobial agents.

ix) MA In Mass Communication and Journalism (MCJ) & Master in Social Work (MSW)

In the case of Mass Communication & Journalism (MCJ) & Masters course in Social Works (MSW), admission shall be made on the basis of two tests consisting of a Screening Test followed by the Main Test. Only those candidates will be called for the main test (second test), who secure 50% and 45% marks in the screening test in respect of open merit and Reserved Category/ies, respectively.

a. MA Mass Communication & Journalism

The Screening Test (objective type) consisting of 60 questions carrying a total of 60 marks shall be based on the following components:

1. Books and Authors-(Prominent books published in 2008-09; local /national/ international)
2. Abbreviations-(Media related)
3. Who's who in print and electronic media (local and national)?-(Editors/Columnists/Prominent Writers/Anchors/ Producers /Directors):
    a. News organizations: Newspapers, News Magazines, News Agencies
    b. Radio Kashmir/Doordarshan Srinagar, Kashir Channel, DD National Network and Prominent National Cable/Satellite television channels
4. Persons in news (local/ national/international)
5. Language Usage: Vocabulary & Grammar-(Do as directed)
6. Media Terminology - (Generally used terms by media- Print and electronic in news reports)

7. Slogans (Media Organizations/Popular Campaigns)
8. Movies-(Award winning of 2008-09 (national/ international- Producers/Directors/Script writers)
9. Current Affairs-(local/ national/ international)

The Main Test (descriptive type) carrying a total of 60 marks shall comprise of 5 questions and the candidates shall be required to attempt all the questions in 2 ½ hours. Here the candidates are expected to write.

Q1. Topical Essays
Q2. Personality profile (local/national/international)
Q3. Comment/s on local Print and/or Electronic Media
Q4. Comment/s on national Print and/or Electronic Media
Q5. A 300-Word creative piece on a given theme

Note: Questions will be framed keeping in view the information and understanding level of an average graduate student.

b. MA (MSW)

Here the first test (screening test of objective type) shall be based on General Knowledge (40 questions) and B. A. level Sociology (20 questions), whereas the main test carrying a total of 60 marks shall comprise of 10 questions (descriptive type) pertaining to various social issues, out of which the candidate shall be required to attempt 5 questions in 2 ½ hour.

x) MA Linguistics:

Here the candidates shall be required to answer questions that shall test their understanding of basic knowledge of different subjects, aptitude of languages, communication skills, history of Kashmir, current affairs and reasoning.

xi) MSc Home Science

There shall be a common Entrance Test in the courses offered by the Institute of Home Science namely: (i) M.Sc. Home Science (Food and Nutrition with specialization in 'Food Science and Nutrition' and 'Dietetics and Clinical Nutrition); (ii) M.Sc. Home Science (Extension & Communication) and (iii) M.Sc. Home Science (Human Development).

The question paper shall be based on the course contents of BSc. Home Science prescribed by the University.

xii) MSc Statistics

Candidates seeking admission to the M.Sc. course in Statistics shall be required to have passed BA. / BSc. with Mathematics or Statistics as one of the subjects. There shall be two separate question papers with one for candidates having BA. / BSc. statistics background (without Mathematics) and the other for candidates having passed BA. / BSc. with Mathematics as one of the subjects (with or without Statistics).

xiii) MBA and MFC

All eligible candidates will have to appear in a written test (objective type aptitude test) to be held at Srinagar and other approved centres outside the state (subject to the availability of at least 25 applicants in each centre). The candidates who qualify the written test as per the statutes shall be called for group discussion and personal interview to be held at Srinagar. Candidates have to bear their travelling expenses for attending the GD/Viva themselves. The written test shall comprise of the following sections:

S. No.	No. of Section	Suggested Questions	Time (minutes)
1.	*Language Comprehension*	*40*	*30*
2.	*Mathematical Skills*	*40*	*40*
3.	*Data Analysis and Sufficiency*	*40*	*35*
4.	*Intelligence and Critical Reasoning*	*40*	*30*
5.	*Indian and Global Environment*	*40*	*15*
	Total	**200**	**150**