DEPARTMENT OF GEOINFORMATICS

Entrance Test Syllabus for M. Sc. (Geoinformatics Course)
Academic Session 2025 based on NEP-2020 UG syllabus

The subject-wise detailed syllabus for Entrance Test admission to M. Sc. Geoinformatics course in the university of Kashmir is outlined under the following 15 units based on NEP-2020 UG syllabus. 60 MCQ questions shall be set from the entire syllabus for the Entrance Examination.

Unit 1 Computer Science: Concepts of hardware and software, Storage devices, Graphic User Interface, database concepts, Compilers and interpreters; Number systems: Binary, Decimal, Common Application Softwares, Computer networks, Internet tools and browsers.

Unit-2 Physical Geology: Origin, age and interior of the earth, continental drift, geological scale. Causes and distribution of earthquakes and volcanoes, definition and classification of rocks, folds, faults and joints, geological work of running water, glaciers and winds

Unit-3 Land use Planning: Land use and land cover classification. Land capability classification, Weathering, erosion and types of erosion, soil classification, soil formation and soil conservation.

Unit-4 Remote Sensing and GIS: Definition of remote Sensing, types of sensors and applications of remote sensing, Geographical information System (GIS) and its applications, field survey techniques, topographic and geologic maps

Unit- 5 Hydrology: Hydrologic cycle, various hydrological processes like precipitation, surface runoff, evaporation, transpiration, evapotranspiration, interception and base flow, Hydrographs, Hydropower estimation, Hydrological instrumentation, Floodplains and flooding.

Unit-6 Environmental Sciences: Global Environmental issues, International Conventions: UNFCCC, UNCCD, CBD; water resources management, disaster management, pollution: causes, consequences and control; sustainable development and Millennium development goals

Unit-7 Physical Geography: Physiography, climate, energy, mineral resources, water resources, forests, soils, flora and wildlife of J&K . Map types, design, symbolization, legend, scale, annotation and map layout.

Unit-8 Plant Science: Concept, structure and types of ecosystems, types of succession. Dormancy and seed germination, respiration, genetic engineering, photosynthesis, Flowering, growth and development. Importance of water to plant life, transpiration, mineral uptake.

Unit-9 Animal Science: Animals in the use of man, introduction to physiology and development of Digestive, circulatory, respiratory, execratory, reproductive and nervous system. Endocrine and exocrine systems. Zoo-geographic realms, major biomes of world, Fauna of J&K

Unit-10 Physical Science : Fundamentals concepts of light, electricity and magnetism, electromagnetic radiation, gravitational laws , laws of thermodynamics, Spectroscopy, Basic concepts and forms of energy.

Unit-11 Chemical Science: Basics of atomic structure, electronic configuration, , basic concepts of chemical bonding, concept of acids and bases, Oxidation and reduction reactions, Water- physical characteristics; Kinetic theory of gases and gas laws

Unit-12 Ecosystem services and Processes: Plants in the service of mankind, Minor forest produce, Environmental flows, Energy flow, biogeochemical cycles- carbon, nitrogen and phosphorus, importance of snow and glacier resources in Himalayas.

Unit 13 Climatology: Atmosphere: origin, composition and structure, Climate change and its causes, Paleoclimatology**,** renewable and non-renewable forms of energy. Introduction to environmental and atmospheric chemistry

Unit-14 Statistics: Measures of central tendency, measures of dispersion, measures of skewness and kurtosis, frequency distribution, scatterplots, sampling methods, Regression analysis, coefficient of variation

Unit-15 Mathematics: logarithms, permutations and combinations, arithmetic, geometric and harmonic progressions, quadric equations, solution to linear equations, Matrices; Boolean Algebra, Matrix inversion