

## **Syllabus and Marks Scheme for M. Sc. (Geoinformatics Course)- Session 2010-11**

The break-up of the subject-wise questions and the detailed syllabus is outlined as follows:

<b><u>Subject</u></b>	<b><u>Questions</u></b>
Computer science:	10
Earth and Environmental Science:	20
Life Sciences:	10
Chemical and Physical Sciences	10
Mathematics and Statistics:	10
Total: 60	

### **Computer Science:**

Fundamentals of Computers: Concepts of hardware and software, Storage devices, Graphic User Interface, database concepts, Compilers and interpreters; Number systems: Binary, Decimal, Application Software: MS word basics, MS Excel basics, presentation graphics and powerpoint. Networking: Computer networks and emerging trends, communication through networks, Internet awareness, Internet tools and browsers.

### **Earth and Environmental Sciences:**

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

Land use and land cover classification. Land capability classification, Weathering, erosion, soil formation and soil conservation.

Map types, design, symbolization, legend, scale, annotation and map layout, field survey techniques, topographic and geologic maps.

Definition of remote Sensing, types of sensors and applications of remote sensing Geographical information System (GIS) and its applications.

Hydrologic cycle, various hydrological processes like precipitation, surface runoff, evaporation, transpiration, evapotranspiration, interception and base flow.

Global Environmental issues: ozone depletion and global climate change, International Conventions: UNFCCC, UNCCD, UBD; water resources

management, disaster management, pollution: causes, consequences and control

Physiography, climate, energy, mineral resources, water resources, forests, soils and wildlife of J&K

### **Life Sciences:**

Concept of ecosystem, structure and types, terrestrial ecosystems, types of succession. Energy flow, flora of J&K. Dormancy and seed germination, respiration, genetic engineering, photosynthesis, Importance of water to plant life, transpiration, mineral uptake, flowering, growth and development.

Plants and animals in the use of man, introduction to physiology and development of Digestive, circulatory, respiratory, excretory, reproductive and nervous system. Endocrine and exocrine systems. Zoo-geographic realms, major biomes of world, Fauna of J&K

### **Chemical and Physical Science:**

Fundamentals concepts of light, electricity and magnetism, electromagnetic radiation, gravitational laws, laws of thermodynamics, Spectroscopy, Basic concepts and forms of energy, renewable and non-renewable forms of energy.

Basics of atomic structure, electronic configuration, , basic concepts of chemical bonding, concept of acids and bases, Oxidation and reduction reactions, biogeochemical cycles- carbon, nitrogen and phosphorus, Water-physical characteristics; introduction to environmental and atmospheric chemistry

### **Mathematics and Statistics:**

Measures of central tendency, measures of dispersion, measures of skewness and kurtosis, frequency distribution, scatterplots, sampling, logarithms, permutations and combinations, arithmetic, geometric and harmonic progressions, quadric equations, solution to linear equations, , Matrices; Boolean Algebra, Matrix inversion