

## SEMESTER-I

**MEN-C 101 : Fundamentals of Environmental Science M.M.: 70**

### UNIT – I

Introduction of ecology (Definition, brief history, scope and branches of ecology). Definition of Environment and Environmental factors: Abiotic factors: medium, substratum, soil, water, humidity, climate and microclimate, light, temperature, current and pressure, atmospheric gases (O<sub>2</sub>, CO<sub>2</sub> and N<sub>2</sub>), pH and flow of nutrients through bio-geochemical cycles (C, N, O, P, S), their role and importance.

### UNIT – II

Ecosystem: Definition, structural components of ecosystem. Biotic components of ecosystem: autotrophs and heterotrophs *i.e.*, producers, consumers, decomposers and transformers. Energy flow in an ecosystem, Ecological pyramids of numbers, biomass and energy, concept of primary productivity and secondary productivity. Habitats and Ecosystem Classification, Ecosystem mapping, ecotone, ecotype and edge effect.

### UNIT – III

Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. biomes of earth, study of different ecosystems, characteristics and components of forest ecosystem, grassland ecosystem, desert ecosystem and aquatic ecosystem including wetlands: (classification, origin and their significance).

### UNIT – IV

Population ecology: definition, characteristics of population, dynamics & regulation, community ecology concept, community characteristics and, dynamics & interactions (Parasitism, prey-predator relationship, competition, mutualism, symbiosis & commensalism), development of community (ecological succession), ecological adaptations.

### UNIT – V

Environmental perception in Vedic literature (air, fire, earth, water and sun in Vedas), Environmental ethics and global imperatives. Mass and energy transfer across various interfaces, Energy budget, Ecological energetics material balance, Law of Thermodynamics, heat transfer processes, and zoo-geographical classification.

**NOTE:** The question paper shall consist of two sections (A & B). Section A shall contain ten short answer type questions of six marks each and student has to attempt any five questions in about 150 words each. Section B shall consist eight long answer type questions of ten marks each and student shall be required to attempt any four questions in detail. Questions shall be uniformly distributed from the entire syllabus. The previous year paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.