

ENVIRONMENTAL STUDIES – I (Credit – 4)

Full Marks: 50

Total Lectures : 40

Unit 1: Introduction (Lecture – 8)

10 marks

Definition, Different factors of Environment, Weather and climate, Global environment and its segments – atmosphere, hydrosphere, lithosphere and biosphere, Multidisciplinary nature, scope and importance.

Unit 2: Ecological Concepts (Lecture – 8)

10 marks

Concept of habitats, ecosystem and biomes; Ecotone and edge effect; Ecological Niche and Ecological succession; Structure and function of an ecosystem – producers, consumers and decomposers; Energy flow in the system; Food chain, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of the following ecosystems – (a) forest ecosystem, (b) grassland ecosystem, (c) aquatic ecosystem (ponds, wetlands, lakes, rivers).

Unit 3: Biodiversity and its conservation (Lecture – 8)

10 marks

Introduction – definition, genetic, species and ecosystem diversities; Bio-geographical classification of India; Value of biodiversity – consumptive use, productive use, social, ethical, aesthetic and option values; Biodiversity at global, national and local level; India as a mega-diversity nation; Hot-spots of biodiversity; Threat to biodiversity – habitat loss, poaching of wild life, man-wildlife conflicts; Endangered and endemic species of Northeast India; Conservation of biodiversity – in-situ and ex-situ conservation.

Unit 4: Natural Resources - I (Lecture – 8)

10 marks

Harnessing of natural resources and associated problems, Conservation of natural resources – Role of individual in conservation of natural resources; Equitable use of resources for sustainable lifestyle.

- (a) Forest resources: Type of forests, Use and over-exploitation, deforestation, dams and their effects on forest and tribal people*
- (b) Water Resources: Different sources of water; Rivers, Lakes and Wetlands; Water quality for different uses; Over-exploitation of surface and ground water, floods, drought, conflicts over water, dams – benefits and problems.*

Unit 5: Natural Resources - II (Lecture – 8)

10 marks

- (a) Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.*
- (b) Energy Resources: Growing energy needs, renewable and non-renewable energy sources and their advantages and disadvantages, use of alternate energy sources.*
- (c) Land Resources: Land as a resource, land degradation, man-induced landslides, soil erosion and conservation.*
- (d) Food Resources: World food problems, changes caused by agriculture and overgrazing, effect of modern agriculture – problems of high yielding variety of crops and genetically modified organisms, fertilizers-pesticides and salinity.*

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ENVIRONMENTAL STUDIES – II (Credit – 4)

Full Marks: 50

Total Lectures : 40

- Unit 1: Environmental Pollution – I (Lecture – 8) 10 marks**
Definition; Causes, effects and control measures of – (a) air, (b) Water and (c) Thermal pollution; Acid rain – causes and effects; Role of individuals in prevention of pollution;
- Unit 2: Environmental Pollution – II (Lecture – 10) 10 marks**
(a) *Definition; Causes, effects and control measures of – (a) Noise, (b) Soil and (c) Nuclear pollution; Waste land reclamation; Problems of Solid wastes and their management;*
(b) *Disasters caused due to Floods, earthquake, cyclone and landslides, and their management.*
- Unit 3: Social issues and the Environment (Lecture – 10) 10 marks**
Sustainable development; Problems related to energy, water conservation, rainwater harvesting, watershed management; Environmental ethics – issues and possible solutions; Consumerism and waste product; Problems related to development projects - Resettlement and rehabilitation of people, its problem and concern;
Global environmental issues - Global warming and climate change; ozone layer depletion, Environmental protection acts – Air (prevention and control of pollution) act, Water (prevention and control of pollution) act, Wildlife protection act, Forest conservation act; Issues involved in enforcement of environmental legislation.
- Unit 4: Human population and the Environment (Lecture – 8) 10 marks**
Population growth, variation among nations; Population explosion – family welfare programme; Environment and human health; Sanitation; human rights; value education; women and child welfare.
- Unit 5: Field work (4 lectures) 10 marks**
A Field Work Report should be submitted by each student to their concern teacher. The report may be based on the visit to a local area to document environmental assets – river/ forest/ grassland/ hill/ mountain; Visit to a local polluted site – urban/ rural/ industrial/ agricultural; study of common plants, insects, birds; Study of simple ecosystem, ponds, river, hill slopes etc.

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