



# ENVIRONMENTAL SCIENCE

**Class 11<sup>th</sup> M. Marks: 100**

**Practical: 30**

**Theory:70**

## Unit 1:- Understanding Environment (7 marks)

- Concept of Environment and its types; physical, biological; and social environment.
- Scope and importance of Environmental Science.
- Components of environment.
  - a. Lithosphere
  - b. Hydrosphere
  - c. Atmosphere
  - d. Biosphere
- Origin of Earth
- Human and environment relationship.

## Unit 2: Ecology (7 marks)

- Ecology (definition and types)
- Concept and structure of ecosystem)
- Trophic relationship (food chain, food web, ecological pyramids)
- Functions of ecosystem (energy flow in an ecosystem)
- Ecological Succession (types and stages)

## Unit 3: Ecological Interactions and Adaptations (7 marks)

- Ecological interaction and its types
- Inter – specific interaction: positive interaction (mutualism, proto-cooperation, commensalism, symbiosis and scavenging), negative interaction (parasitism. Competition and ammensalism)
- Intra – specific interaction: cooperation and competitive
- Adaptations: concept and need
- Types of adaptations (with special reference to wind, light and temperature)

## Unit 4: Population Ecology (7 marks)

- Concept of species, population and communities.
- Population Dynamics (population size and density, dispersion, natality, mortality, age structure)
- Population growth (exponential and logistic growth)
- Factors regulating population growth (competition, weather and climate, territory, predation, natural disasters and diseases)



- Human population growth (Malthusian theory and neo- Malthusian theory, Demographic Transition)

**Unit 5: Energy Resources (7 marks)**

- Concept of energy resources
- Non- renewable energy resources: coal, petroleum, natural gas
- Renewable energy resources (solar wind and hydropower)
- Nuclear energy (uses and limitations)
- Biofles

**Unit 6: Earth's Environment and Natural Disasters (7 marks)**

- Atmosphere: structure and composition
- Hydrosphere: distribution, hydrological cycle
- Lithosphere: structure
- Biogeochemical cycles (Carbon, Nitrogen and Phosphorous)
- Natural disasters (earthquakes, floods and volcanoes)

**Unit 7: Environmental education and Awareness (7 marks)**

- Concept and need of environmental education
- Formal and informal means of environmental education
- Modes of environmental awareness
- Role of NGOs
- Environmental movements (Chipko movement, Narmada Bachao Andolan)

**Unit 8: Environmental Health (7 marks)**

- Concept of health and disease
- Water borne diseases (Cholera, Hepatistis, Typhoid)
- Air borne diseases (Influenza, Tuberculosis)
- Soil borne disease (Tetanus; Botulism)
- Occupational diseases (Silicosis, Asbestosis)

**Unit 9: Natural Resources (7 marks)**

- Forest resources (types and uses)
- Animal resources (fish and livestock)
- Water resources (fresh and marine)
- Mineral resources (type and uses)
- Medicinal plants (with special reference to J&K)



## Unit 10: Managing Agriculture

(7 marks)

- Concept of traditional and modern agriculture
- Green revolution and white revolution
- Pesticides and fertilizers (types, advantage and disadvantages)
- Integrated pest control
- Food security

## PRACTICALS:

(30 marks)

1. Study of density and abundance of different plant species in a particular area using quadrat method.
2. Determination of water, air and soil temperature.
3. Collection of locally available herbal plants and preparation of herbarium.
4. Field work and visit to National Park/ wild life sanctuary/ STP/ water body and preparation of a field report.
5. Visit to a nearby primary or middle school to impart environmental awareness.
6. Documentation of agricultural crops, fertilizers and pesticides used in your locality.

