

## CONTENTS

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### **1. The Environment**

Components of environment; Factors influencing environment; Elements of environment; Atmosphere : Troposphere, Stratosphere; Mesosphere, Ionosphere, Exosphere; Hydrosphere; Lithosphere; Biosphere.

### **2. Ecology**

Definition, Scope and Objectives of Ecology; Branches of Ecology; Ecosystem and its functions; Different ecological factors: Light, Temperature, Water, Rainfall, Wind; Humidity, Atmospheric gases; Edaphic factors; Soil erosion; Agents of soil erosion; Soil conservations; Biotic factors : mutualism, commensalism; Protocooperation, antagonism, antibiosis; Parasitism, predation, competition; Limiting factors; Laws of limiting factors; Ecological adaptations.

### **3. Ecosystem and Its Structure**

Kinds of ecosystem; Components of ecosystem; Functions of ecosystem; Pond as an ecosystem; Grass-land as an ecosystem; Processes in ecosystem; Energetics of ecosystem; Energy flow in ecosystem; Laws of thermodynamics; Food chain and Food web; Ecological pyramid; Productivity.

### **4. Biogeochemical Cycles**

Hydrologic or water cycle; Oxygen cycle; Carbon cycle; Nitrogen Cycle; Sedimentary cycle; Phosphorous cycle.

### **5. Population Ecology**

Population density; Natality; Mortality; Dispersion; Age Pyramid; Population growth curve; Community; Theories of Climax Community; Ecological succession.

### **6. Environmental Pollution**

Definition; Types of pollutants; Agents causing pollution; Classification; Effects of pollution; Air pollution; Sources; Air pollutants; Effects of air pollution and its control; Terrestrial pollution; Noise pollution: Sources, effects and control of noise pollution; Radiation Pollution: Sources, effects and control of radiation pollution; Thermal pollution; Industrial pollution, Effects and control of industrial pollution; Chemical wastes; Biological concentration and Bio-

magnification; Sewage and sewage treatment; Ozone layer depletion; Green house effect; Smog; Acid rain.

**7. Conservation of Natural Resources**

Renewable and non-renewable resources; Need for conservation of resources; India's resources; Social forestry and its justification; Deforestation; Loss of bio-diversity; Conservation of forests; Water resources; Conservation of water; Soil resources; Energy resources; Conservation of biodiversity; Wild life conservation; National parks and sanctuary; Phytogeographical regions of India.

**8. Water and Irrigation**

Composition and properties of water; Sources of water in nature; Classification of natural water; Purification of natural water; Hard and soft water; Water and man, water and animals; Water and climate; Importance of safe drinking water; Importance of irrigation; Sources of irrigation; Irrigation projects in India; Irrigation in Eighth Plan; Benefits of irrigation; Defects of irrigation.

**9. Environmental Planning and Managements**

Problems in maintaining ecological balance; Waste land development; Purification of air and its use; Biosphere; Environmental education.

**10. Environmental Policy**

Introduction; Water Act; Air Act; Pollution Control Board and its function; The Environmental Protection Act, 1986.

**11. Public Health**

Water: the liquid of life; Relevance of primary health care; Health hazards due to water pollution; Purification of water; Diseases; Contagious and infectious diseases; Modes of disease transmission; Food: Sanitation and hygiene; Importance of immunisation; The Lurking killers; Influenza, Pneumonia, Chicken Pox; Scarlet fever, Whooping cough.

**12. Biostatistics**

Measures of central tendency; Arithmetic mean; Mode; Median; Frequency and Frequency distribution; Dispersion; The Range; Quartile deviation; Mean deviation; Standard deviation; Variance; Standard error mean.

**Possible Questions.**