

Environmental Science and Engineering

1. Introduction to Environmental Studies and Natural Resources

- 1.1 Definition, Scope, and Importance
- 1.2 Need of Public Awareness
- 1.3 Structure of Atmosphere
- 1.4 Field Work of Atmosphere
- 1.5 Types of Resources
- 1.6 Forest Resources
- 1.7 Water Resources
- 1.8 Mineral Resources
- 1.9 Food Resources
- 1.10 Energy Resources
- 1.11 Role of an Individual in Conservation of Natural Resources
- 1.12 Field Work

2. Ecosystem and Biodiversity

- 2.1 Concept of an Ecosystem
- 2.2 Structure and Components of an Ecosystem
- 2.3 Energy Flow in Ecosystem
- 2.4 Ecological Succession
- 2.5 Food Chain and Food Web
- 2.6 Ecological Pyramid
- 2.7 Biomes
- 2.8 Types of an Ecosystem
- 2.9 Definition of Biodiversity and Classification of Biodiversity
- 2.10 Bio-Geographical Classification of India
- 2.11 Values of Biodiversity
- 2.12 Biodiversity at the National Level in India
- 2.13 Biodiversity at the Local Level
- 2.14 Hot-Spots of Biodiversity
- 2.15 Threats to Biodiversity
- 2.16 Endangered Species of India
- 2.17 Endemic Species of India
- 2.18 Conservation of Biodiversity

3. Environmental Pollution

- 3.1 Pollution
- 3.2 Air Pollution
- 3.3 Water Pollution
- 3.4 Soil Pollution
- 3.5 Marine Pollution
- 3.6 Noise Pollution
- 3.7 Thermal Pollution
- 3.8 Nuclear Hazards
- 3.9 Solid Waste Management
- 3.10 Role of Individual in Prevention of Pollution

- 3.11 Pollution Case Studies
- 3.12 Floods
- 3.13 Cyclone
- 3.14 Landslides
- 3.15 Earthquakes
- 3.16 Tsunami
- 3.17 Field Study: Study of Local Polluted Site
- 3.18 Bioconversion of Pollutants

4. Social Issues and the Environment

- 4.1 Sustainable Development
- 4.2 Urban Problems related to Energy / Urbanization
- 4.3 Water Conservation
- 4.4 Rain-Water Harvesting
- 4.5 Watershed Management
- 4.6 Resettlement and Rehabilitation of People
- 4.7 Environmental Ethics
- 4.8 Climate Change
- 4.9 Green House Effect
- 4.10 Acid Rain
- 4.11 Ozone Layer Depletion
- 4.12 Nuclear Holocaust
- 4.13 Global Change
- 4.14 Wasteland Reclamation
- 4.15 Consumerism and Waste Products
- 4.16 Environment Protection Act (EPA)
- 4.17 Central Pollution Control Board (CPCB)
- 4.18 State Pollution Control Board
- 4.19 Public Awareness and Role of NGOs in Environmental Conservation

5. Human Population and the Environment

- 5.1 Population Growth
- 5.2 Population Explosion
- 5.3 Family Welfare Programme
- 5.4 Family Planning Programmes
- 5.5 Environment and Human Health
- 5.6 Human Rights and Value of Education
- 5.7 HIV & AIDS
- 5.8 Women Welfare
- 5.9 Child Welfare
- 5.10 Role of IT in Health Services and Environmental Services