

Basics of Environmental Studies

1. Introduction to Environment, Ecology and Ecosystem

Definition and Inter-relationships amongst and between them

Components of Environment, Relationship between different components

Man-Environment relationship

Impact of Technology on the environment

Environmental Degradation:

2 Ecology & Ecosystems

Introduction: Ecology- Objectives and Classification

Concepts of an ecosystem- structure & function of ecosystem

Components of ecosystem- Producers, Consumers, Decomposers

Bio-Geo- Chemical Cycles- Hydrological Cycle, carbon cycle, Oxygen Cycle,

Nitrogen Cycle, Sulfur Cycle

Energy Flow in Ecosystem

Food Chains: Grazing, Detritus, & Food webs

Ecological Pyramids

Major Ecosystems: Forest Ecosystem, Grassland Ecosystem, Desert Ecosystem, Aquatic Ecosystem, Estuarine Ecosystem

3 Population & Natural Resources

Development of Habitation patterns and Environmental factors governing human settlement

Population & Pollution , Reasons for overpopulation ,Population Growth, Demographic

Projections and Population Structures ,Production of food

Renewable & Nonrenewable Resources: Renewable Resources, Nonrenewable Resources, Destruction versus Conservation

Water Resources: Water Resources-Indian Scenario, Water Sources- Surface & Ground Water Sources, Uses & overuses of water resources, problems due to Overexploitation of Water Resources

Forest Resources : Forest Resources - Indian Scenario , Importance of forests- Ecologically & Economically, Uses of forest products, Forest Types, Deforestations-Causes and effects, Forest Degradation in India

Energy Resources : Energy Resources - Indian Scenario , Conventional Energy Sources & its problems, non-conventional energy sources-Advantages & its limitations , Problems due to Overexploitation of Energy Resources

4 Environmental Pollution

Types of Environmental Pollution

Water Pollution : Introduction – Water Quality Standards , Sources of Water Pollution, Classification of water pollutants, Effects of water pollutants , Eutrophication

Air Pollution : Composition of air , Structure of atmosphere, Ambient Air Quality Standards, Classification of air pollutants, Sources of common air pollutants like SPM, SO₂, NO_x – Natural & Anthropogenic Sources, Effects of common air pollutants
Land & Noise Pollution : Introduction- Lithosphere, Land Uses, Causes of land Degradation, Sources of Noise Pollution, Effects of noise pollution
Current Environmental Global Issues : Global Warming & Green Houses Effects, Acid Rain , Depletion of Ozone Layer

REFERENCE BOOKS :

- 1 Environmental Studies: R. Rajagopalan, Oxford University Press
- 2 Environmental Pollution: Causes, Effects & Control by K.C Agrawal
- 3 Environmental Science by Richard T Wright & Bernard J Nebel
- 4 Environmental Science by Daniel B Botkin & Edward A Keller
- 5 Environmental Engineering & Management by Suresh K Dameja
- 6 Environmental Management by Dr. Swapan C Deb
- 7 Environment & Ecology by Dr Gourkrishna Dasmohapatra
- 8 Introduction To Environmental Engineering and Science by Master Gilbert M.