

Table of Contents

| | |
|--|----------|
| Introduction | ix |
| Chapter 1: Earth and Environment | 3 |
| 1.1 The Earth and Solar System..... | 2 |
| 1.2 Composition of the Earth..... | 3 |
| 1.3 Origin of Life on Earth | 6 |
| 1.4 Environment and Its Segments | 7 |
| Atmosphere | 8 |
| Hydrosphere | 9 |
| Lithosphere..... | 9 |
| Biosphere | 10 |
| 1.5 Natural Resources | 11 |
| Forest Resources | 11 |
| Water Resources | 12 |
| Food Resources | 13 |
| Energy Resources | 14 |
| Mineral Resources | 15 |
| 1.6 Environmental Adaptations..... | 16 |
| 1.7 Environmental Disasters..... | 18 |
| Earthquake | 18 |
| Flood | 19 |
| Tsunami..... | 21 |
| Drought | 21 |
| 1.8 Global Issues Concerning Environment | 22 |
| Summary..... | 23 |
| Exercise | 24 |
| Multiple Choice Questions | 24 |
| Review Questions | 26 |

| | |
|---|-----------|
| Chapter 2: Energy | 27 |
| 2.1 Consumption of Energy | 28 |
| 2.2 Sources of Energy | 29 |
| Renewable Source of Energy..... | 29 |
| Non-Renewable Source of Energy..... | 42 |
| 2.3 Conservation of Energy | 47 |
| 2.4 Energy Scenario of India | 48 |
| 2.5 Balancing Energy and Environment | 49 |
| Summary..... | 50 |
| Exercise | 51 |
| Multiple Choice Questions | 51 |
| Review Questions | 52 |
| Chapter 3: Atmosphere and Ecosystem..... | 53 |
| 3.1 Composition of the Atmosphere..... | 54 |
| 3.2 Properties of the Atmosphere | 55 |
| 3.3 Atmosphere and Its Layers | 57 |
| Troposphere..... | 57 |
| Stratosphere | 58 |
| Mesosphere | 58 |
| Thermosphere and Ionosphere | 58 |
| 3.4 Weather and Climate | 59 |
| 3.5 Ecosystem and Its Components | 60 |
| Biotic Components | 61 |
| Abiotic Components..... | 63 |
| 3.6 Types of Ecosystem | 63 |
| Natural Ecosystems..... | 64 |
| Artificial Ecosystems..... | 64 |
| 3.7 Energy Flow Models and Characteristics of an Ecosystem..... | 64 |
| 3.8 Food Chain and Trophic Levels | 66 |
| 3.9 Ecological Pyramids | 69 |
| 3.10 Cycles in Ecosystem..... | 71 |
| Water Cycle..... | 71 |

| | |
|--|-----------|
| Carbon Cycle | 72 |
| Nitrogen Cycle | 73 |
| 3.11 Human-Induced Ecosystem Degradation | 75 |
| Summary | 76 |
| Exercise | 76 |
| Multiple Choice Questions | 76 |
| Review Questions | 78 |
| Chapter 4: Biodiversity..... | 79 |
| 4.1 Definition of Biodiversity..... | 80 |
| Present State of Biodiversity..... | 80 |
| Biodiversity Hotspots | 82 |
| 4.2 Types of Biodiversity | 83 |
| Genetic Diversity..... | 84 |
| Species Diversity..... | 85 |
| Ecological Diversity..... | 85 |
| 4.3 Importance of Biodiversity | 86 |
| 4.4 Benefits of Biodiversity..... | 87 |
| 4.5 Threats to Biodiversity | 88 |
| 4.6 Conservation of Biodiversity..... | 91 |
| Summary..... | 94 |
| Exercise | 95 |
| Multiple Choice Questions | 95 |
| Review Questions | 96 |
| Chapter 5: Air Pollution..... | 97 |
| 5.1 Air and Its Natural Constituents | 98 |
| 5.2 Types of Air Pollution | 98 |
| 5.3 Sources of Air Pollution | 100 |
| Anthropogenic Sources | 100 |
| Natural Sources | 102 |
| 5.4 Air Pollutants..... | 102 |
| Primary Pollutants | 103 |
| Secondary Pollutants | 106 |

| | | |
|-------------------|--|------------|
| 5.5 | Effects of Air Pollution..... | 107 |
| | Greenhouse Effect | 108 |
| | Ozone Layer Depletion | 110 |
| | Acid Rain | 111 |
| 5.6 | Measures to Control Air Pollution..... | 112 |
| | Summary..... | 114 |
| | Exercise | 115 |
| | Multiple Choice Questions | 115 |
| | Review Questions | 116 |
| Chapter 6: | Water Pollution | 117 |
| 6.1 | Structure and Properties of Water | 118 |
| 6.2 | Sources of Water and Its Uses..... | 121 |
| 6.3 | Causes of Water Pollution | 123 |
| 6.4 | Sources of Water Pollution..... | 124 |
| 6.5 | Pollutants in Water | 125 |
| 6.6 | Effects of Water Pollution | 128 |
| 6.7 | Measures to Control Water Pollution | 129 |
| 6.8 | Treatment of Domestic and Industrial Water Effluent..... | 131 |
| 6.9 | Conservation of Water | 133 |
| | Summary..... | 134 |
| | Exercise | 135 |
| | Multiple Choice Questions | 135 |
| | Review Questions | 136 |
| Chapter 7: | Soil Pollution..... | 137 |
| 7.1 | Soil Profile | 138 |
| 7.2 | Soil Formation and Its Types..... | 139 |
| 7.3 | Types of Soil Pollution | 141 |
| 7.4 | Sources of Soil Pollution | 143 |
| 7.5 | Pollutants in Soil | 144 |
| 7.6 | Effects of Soil Pollution..... | 145 |
| 7.7 | Measures to Control Soil Pollution..... | 148 |
| | Summary..... | 149 |

| | |
|--|------------|
| Exercise | 150 |
| Multiple Choice Questions | 150 |
| Review Questions | 151 |
| Chapter 8: Noise Pollution | 152 |
| 8.1 Hearing Mechanism..... | 154 |
| 8.2 Sources of Noise Pollution | 155 |
| 8.3 Measurement of Noise Pollution | 157 |
| 8.4 Noise Measuring Instruments | 159 |
| 8.5 Characteristics of Noise | 160 |
| 8.6 Effects of Noise Pollution..... | 161 |
| 8.7 Measures to Control Noise Pollution | 163 |
| Summary..... | 164 |
| Exercise | 164 |
| Multiple Choice Questions | 165 |
| Review Questions | 166 |
| Chapter 9: Society and Environment | 167 |
| 9.1 Human Health and Environment | 168 |
| 9.2 Environmental Problems..... | 169 |
| 9.3 Population Growth and Its Impact on the Environment..... | 170 |
| 9.4 Solid Waste..... | 174 |
| Sources of Solid Waste..... | 174 |
| Types of Solid Waste..... | 176 |
| 9.5 Impact of Solid Waste on Society and Environment..... | 178 |
| 9.6 Solid Waste Management..... | 179 |
| Urban Waste Management | 180 |
| Industrial Waste Management | 180 |
| 9.7 Sustainable Development..... | 181 |
| 9.8 Environmental Protection Acts..... | 182 |
| 9.9 Environmental Impact Assessment..... | 184 |
| Summary..... | 185 |
| Exercise | 186 |
| Multiple Choice Questions | 186 |
| Review Questions | 188 |

| | |
|--|------------|
| Chapter 10: Environmental Ethics and Morals | 189 |
| 10.1 Ethics and Moral Values | 190 |
| 10.2 Objectives of Ethics and Its Study | 191 |
| 10.3 Ethical Theories | 192 |
| 10.4 Code of Ethics | 193 |
| Importance of Ethics..... | 194 |
| Limitations of Ethics..... | 194 |
| 10.5 Environmental Ethics | 195 |
| Libertarian Extension..... | 195 |
| Ecologic Extension..... | 196 |
| Conservation Ethics..... | 196 |
| Humanist Theories | 196 |
| Anthropocentrism..... | 197 |
| 10.6 Environmental Ethics in India | 197 |
| 10.7 Definition of Morality..... | 199 |
| Morality and Behavior | 200 |
| Morality and Conscience..... | 201 |
| Summary..... | 201 |
| Exercise | 202 |
| Multiple Choice Questions | 202 |
| Review Questions | 203 |
| Index | 205 |