

Climate Change and Environment

MCQ Pack

250 Topic-wise Questions | Answer Key | Short Explanations | Printable Practice Format

Includes	250 multiple-choice questions, topic-wise practice, answer key, short explanations, revision notes and references.
Prepared for	Decoding Biosphere readers, school and college learners, exam practice and classroom use.

Publisher/Brand: Decoding Biosphere

Copyright notice: This learning pack is for personal study and classroom use by the buyer. Redistribution, resale, public upload, or conversion into another paid product without permission is not allowed.

How to Use This Pack

Use this pack in three stages. First, attempt the questions without checking the answers. Second, mark your responses on the answer sheet. Third, use the answer key and explanations to revise weak topics.

The questions are arranged from basic to applied level and cover climate science, greenhouse gases, impacts, biodiversity, pollution, water, agriculture, renewable energy, sustainability and environmental governance.

Topic Coverage

Section	Question Range	Questions
1. Climate Change Fundamentals	Q1-35	35
2. Greenhouse Gases, Carbon Cycle and Energy	Q36-70	35
3. Climate Impacts, Risks and Adaptation	Q71-105	35
4. Biodiversity, Ecosystems and Forests	Q106-140	35
5. Pollution, Waste and Circular Economy	Q141-175	35
6. Water, Agriculture and Food Systems	Q176-205	30
7. Renewable Energy and Sustainable Living	Q206-230	25
8. Environmental Governance, Methods and India Context	Q231-250	20

Printable Answer Sheet

Write A, B, C or D in the blank cell. Use this sheet before checking the answer key.

Q	Answer	Q	Answer	Q	Answer	Q	Answer	Q	Answer
1		51		101		151		201	
2		52		102		152		202	
3		53		103		153		203	
4		54		104		154		204	
5		55		105		155		205	
6		56		106		156		206	
7		57		107		157		207	
8		58		108		158		208	
9		59		109		159		209	
10		60		110		160		210	
11		61		111		161		211	
12		62		112		162		212	
13		63		113		163		213	
14		64		114		164		214	
15		65		115		165		215	
16		66		116		166		216	
17		67		117		167		217	
18		68		118		168		218	
19		69		119		169		219	
20		70		120		170		220	
21		71		121		171		221	
22		72		122		172		222	
23		73		123		173		223	
24		74		124		174		224	
25		75		125		175		225	
26		76		126		176		226	
27		77		127		177		227	
28		78		128		178		228	
29		79		129		179		229	
30		80		130		180		230	
31		81		131		181		231	
32		82		132		182		232	
33		83		133		183		233	
34		84		134		184		234	
35		85		135		185		235	
36		86		136		186		236	
37		87		137		187		237	
38		88		138		188		238	
39		89		139		189		239	
40		90		140		190		240	
41		91		141		191		241	
42		92		142		192		242	
43		93		143		193		243	
44		94		144		194		244	
45		95		145		195		245	
46		96		146		196		246	
47		97		147		197		247	
48		98		148		198		248	

Q	Answer	Q	Answer	Q	Answer	Q	Answer	Q	Answer
49		99		149		199		249	
50		100		150		200		250	

Part A: MCQs

Attempt all questions. Each question has one best answer.

1. Climate Change Fundamentals

1. What does climate change mainly refer to?

- A. Short-term daily weather changes
- B. Long-term shifts in climate patterns
- C. Only the formation of clouds
- D. Only seasonal temperature variation

2. What is global warming?

- A. Daily change in wind speed
- B. A long-term rise in Earth's average surface temperature
- C. A sudden local rainfall event
- D. Cooling of the oceans only

3. Which statement best explains the difference between weather and climate?

- A. Weather is daily or short-term conditions; climate is long-term average patterns
- B. Weather and climate are exactly the same
- C. Climate refers only to rainfall
- D. Weather is long-term; climate is daily

4. What is the greenhouse effect?

- A. The reflection of all sunlight back to space
- B. The trapping of heat by certain gases in the atmosphere
- C. The complete removal of heat from Earth
- D. The process of cloud formation only

5. Which of the following is a greenhouse gas?

- A. Helium
- B. Carbon dioxide
- C. Oxygen
- D. Nitrogen

6. What is radiative forcing?

- A. The speed of wind in the upper atmosphere
- B. A change in Earth's energy balance caused by a factor such as greenhouse gases or aerosols
- C. The amount of rainfall in a city
- D. The ability of soil to hold water

7. What does albedo mean?

- A. The amount of carbon in a forest
- B. The reflectivity of a surface
- C. The acidity of rainwater
- D. The heat stored in groundwater

8. Which surface generally has high albedo?

- A. Dense tropical forest
- B. Dark ocean water
- C. Fresh snow
- D. Black asphalt

9. What is a positive climate feedback?

- A. A process that stops all warming immediately
- B. A process that amplifies the original change
- C. A process unrelated to climate
- D. A process that reduces the original change

10. What is a negative climate feedback?

- A. A process that amplifies warming only
- B. A process that causes deforestation
- C. A process that counteracts the original change
- D. A process that removes oceans

11. What is meant by climate variability?

- A. Only industrial pollution
- B. Permanent removal of seasons
- C. Natural or short-term fluctuations around long-term climate patterns
- D. Only global warming

12. What are El Nino and La Nina?

- A. Phases of natural ocean-atmosphere variability in the Pacific
- B. Two kinds of renewable energy
- C. Methods of wastewater treatment
- D. Types of greenhouse gases

13. Which organization produces major global climate assessment reports?

- A. FIFA
- B. IPCC
- C. OPEC only
- D. WTO only

14. What does mitigation mean in climate action?

- A. Reducing greenhouse gas emissions and increasing carbon sinks
- B. Measuring rainfall only
- C. Ignoring climate risks
- D. Moving all people to mountains

15. What does adaptation mean in climate action?

- A. Stopping all weather
- B. Removing all forests
- C. Preparing for and reducing damage from climate impacts
- D. Increasing greenhouse gas emissions

16. What is climate resilience?

- A. The ability to prepare for, withstand and recover from climate-related stresses
- B. The ability to emit more carbon
- C. The complete absence of extreme weather
- D. The removal of all biodiversity

17. What is climate vulnerability?

- A. The tendency of a system or community to be harmed by climate impacts
- B. The speed of a cyclone only
- C. The amount of solar power installed
- D. The number of clouds in a day

18. What does exposure mean in climate risk?

- A. The speed of photosynthesis
- B. Presence of people, ecosystems or assets in places that could be affected by climate hazards
- C. A type of fossil fuel
- D. The amount of soil carbon

19. What does net zero emissions mean?

- A. Emissions are unlimited
- B. No energy is used anywhere
- C. Remaining emissions are balanced by removals
- D. Only carbon dioxide is measured and never reduced

20. What is carbon neutrality?

- A. Stopping plant growth
- B. Increasing coal use
- C. Removing oxygen from air
- D. Balancing emitted carbon dioxide with avoided or removed carbon dioxide

21. What is the carbon budget?

- A. The cost of planting one tree
- B. The oxygen content of the ocean
- C. The amount of CO₂ that can be emitted while keeping warming within a chosen limit
- D. The maximum amount of plastic that can be recycled

22. What is a climate tipping point?

- A. A daily weather forecast
- B. A threshold beyond which a climate system may shift into a new state
- C. A type of solar panel
- D. A method of composting

23. Which is an example of a possible climate feedback involving permafrost?

- A. Thawing permafrost releasing methane and carbon dioxide
- B. Clouds becoming soil
- C. Solar panels releasing oxygen
- D. Rivers becoming salt-free

24. What is the cryosphere?

- A. The layer of air near the ground
- B. All frozen parts of Earth such as glaciers, ice sheets, snow and sea ice
- C. All underground aquifers
- D. Only tropical forests

25. Why does ocean heat content matter for climate change?

- A. Oceans do not interact with climate
- B. Oceans only affect volcanoes
- C. Ocean heat is unrelated to sea level
- D. Oceans absorb much of the excess heat trapped by greenhouse gases

26. What is the urban heat island effect?

- A. Urban areas being warmer due to buildings, roads and reduced vegetation
- B. A type of ocean current
- C. Cities being cooler than nearby rural areas at all times
- D. A glacier inside a city

27. Which action is an example of climate mitigation?

- A. Installing solar power to reduce coal electricity use

- B. Ignoring heatwave warnings
- C. Removing wetlands
- D. Building houses in floodplains without planning

28. Which action is an example of climate adaptation?

- A. Increasing methane leakage
- B. Developing a heat action plan for a city
- C. Burning more coal
- D. Clearing mangroves

29. What is climate justice mainly concerned with?

- A. Fairness in who causes climate change, who suffers its impacts and who receives support
- B. The names of cyclones
- C. The color of clouds
- D. Only the price of petrol

30. What is meant by co-benefits of climate action?

- A. Only a rise in sea level
- B. A complete ban on science
- C. Only higher emissions
- D. Additional benefits such as cleaner air or better health from climate policies

31. Why are long-term climate records important?

- A. They replace all weather forecasts
- B. They help distinguish long-term trends from short-term variability
- C. They measure only city traffic
- D. They remove the need for satellites

32. What is paleoclimate evidence?

- A. A legal document about forests
- B. Only next week's weather forecast
- C. A type of plastic waste
- D. Information about past climates from ice cores, sediments, tree rings and fossils

33. What is carbon dioxide removal?

- A. The burning of coal
- B. The formation of acid rain only
- C. A method that increases CO₂ emissions
- D. Methods that remove CO₂ from the atmosphere and store it

34. Why can uncertainty still support climate action?

- A. Uncertainty means nothing is known
- B. Uncertainty proves warming is impossible
- C. Uncertainty removes all climate impacts
- D. Uncertainty means risks may be larger or smaller, so precaution and risk management are needed

35. Which phrase best describes the current scientific understanding of recent climate change?

- A. Oceans cannot store heat
- B. Recent warming is caused only by daily weather
- C. Climate has stopped changing
- D. Recent warming is mainly driven by human activities that increase greenhouse gases

2. Greenhouse Gases, Carbon Cycle and Energy

36. Which greenhouse gas is the largest long-lived contributor to human-caused warming?

- A. Argon
- B. Oxygen
- C. Nitrogen
- D. Carbon dioxide

37. Which gas has a stronger short-term warming effect per molecule than CO₂?

- A. Nitrogen
- B. Neon
- C. Methane
- D. Oxygen

38. What is global warming potential?

- A. A measure of rainfall only
- B. A measure comparing how much heat a greenhouse gas traps relative to CO₂ over a time period
- C. The weight of a tree
- D. The salinity of seawater

39. Which activity is a major source of carbon dioxide emissions?

- A. Formation of clouds only
- B. Burning coal for electricity
- C. Photosynthesis by forests
- D. Condensation of water vapor

40. Which activity is a major source of methane?

- A. Wind turbine rotation
- B. Planting native trees
- C. Solar panel operation
- D. Livestock digestion

41. Which activity commonly emits nitrous oxide?

- A. Using a bicycle
- B. Photosynthesis
- C. Use of nitrogen fertilizers in agriculture
- D. Rainwater harvesting

42. Why does deforestation increase atmospheric CO₂?

- A. It stops all rainfall globally
- B. It makes clouds disappear
- C. It releases stored carbon and reduces future carbon absorption
- D. It turns oxygen into nitrogen

43. Which process removes CO₂ from the atmosphere naturally?

- A. Cement production
- B. Photosynthesis
- C. Open burning of waste
- D. Combustion of coal

44. What is respiration in the carbon cycle?

- A. Storage of water in glaciers
- B. Conversion of sunlight into plastic
- C. Removal of nitrogen from rocks

- D. Release of CO₂ by organisms as they use energy

45. Which is a major carbon sink?

- A. Forests
- B. Diesel generators
- C. Smokestacks
- D. Open landfills without gas capture

46. What is blue carbon?

- A. Carbon emitted from blue paint
- B. Carbon inside desert sand only
- C. Carbon stored in coastal and marine ecosystems such as mangroves, salt marshes and seagrasses
- D. Carbon stored in plastic bottles

47. Why are peatlands important for climate?

- A. They store very large amounts of carbon in waterlogged soils
- B. They produce only oxygen and no carbon
- C. They are always deserts
- D. They cannot burn or degrade

48. What happens when peatlands are drained?

- A. Stored carbon can oxidize or burn, releasing greenhouse gases
- B. They stop interacting with climate
- C. They permanently absorb all methane
- D. They become glaciers

49. Which of the following is a fossil fuel?

- A. Wind
- B. Natural gas
- C. Tidal energy
- D. Solar radiation

50. Which statement about cement production is correct?

- A. It absorbs all global CO₂
- B. It is unrelated to emissions
- C. It releases CO₂ from energy use and chemical conversion of limestone
- D. It only produces methane

51. What is carbon intensity?

- A. A type of cloud
- B. The weight of a leaf
- C. The pH of ocean water
- D. Emissions produced per unit of energy or economic output

52. What is a grid emission factor?

- A. The voltage of a battery only
- B. The color of solar panels
- C. The number of wires in a grid
- D. Average emissions per unit of electricity generated or consumed from a power grid

53. Which energy source usually has very low operational greenhouse gas emissions?

- A. Coal power
- B. Wind power
- C. Diesel power
- D. Uncontrolled waste burning

54. What is energy efficiency?

- A. Avoiding all measurement
- B. Using less energy to provide the same service
- C. Using more coal for the same output
- D. Producing more waste heat

55. Which is an example of energy efficiency?

- A. Replacing incandescent bulbs with LED bulbs
- B. Increasing leakage in compressed air systems
- C. Removing building insulation
- D. Leaving old appliances running continuously

56. What is black carbon?

- A. Soot particles from incomplete combustion that absorb sunlight and warm the atmosphere
- B. A type of blue carbon
- C. Pure oxygen in cities
- D. A mineral used for batteries only

57. What are aerosols in the atmosphere?

- A. Tiny solid or liquid particles suspended in air
- B. A form of groundwater
- C. Only greenhouse gases
- D. Large rocks in rivers

58. Which aerosol is generally associated with a cooling effect by reflecting sunlight?

- A. Sulfate aerosol
- B. Carbon dioxide molecule
- C. Nitrous oxide molecule
- D. Methane molecule

59. What are Scope 1 emissions?

- A. Indirect emissions from purchased electricity only
- B. All global emissions
- C. Direct emissions from sources owned or controlled by an organization
- D. Only emissions from consumers

60. What are Scope 2 emissions?

- A. Only household compost
- B. Only emissions from company-owned vehicles
- C. Only tree absorption
- D. Indirect emissions from purchased electricity, steam, heating or cooling

61. What are Scope 3 emissions?

- A. Other indirect emissions in the value chain
- B. Only emissions from solar panels during use
- C. Only water vapor from clouds
- D. Only emissions from a company chimney

62. Which approach can store carbon in soils?

- A. Removing all vegetation
- B. Burning crop residues openly
- C. Over-draining wetlands
- D. Increasing soil organic matter through sustainable land management

63. What is carbon sequestration?

- A. Increasing plastic litter
- B. Releasing carbon from coal
- C. Burning forests
- D. Capturing and storing carbon in vegetation, soils, geological formations or products

64. Which activity increases methane emissions from landfills?

- A. Using wind energy
- B. Repairing electronics
- C. Anaerobic decomposition of organic waste
- D. Recycling clean glass

65. Which waste management action can reduce methane emissions?

- A. Dumping food waste in open landfills
- B. Burning mixed waste openly
- C. Mixing hazardous waste with food waste
- D. Composting source-separated organic waste

66. What is the main climate concern with fluorinated gases?

- A. They can have very high global warming potentials
- B. They form forests
- C. They are always harmless and short-lived
- D. They are the main component of clean air

67. What is carbon capture and storage?

- A. Capturing CO₂ from sources or air and storing it long term
- B. Removing oxygen from forests
- C. Mixing plastic with soil
- D. Burning more coal without controls

68. Which action best reduces both energy use and emissions in buildings?

- A. Improving insulation and efficient cooling or heating systems
- B. Keeping doors open during air conditioning
- C. Using inefficient appliances
- D. Removing shading in hot climates

69. What is a carbon footprint?

- A. A measure of soil color
- B. The total greenhouse gas emissions linked to a person, activity, product or organization
- C. A footprint left in coal dust only
- D. The number of leaves on a tree

70. Which digital activity can contribute indirectly to emissions?

- A. Using data and devices powered by electricity from fossil fuels
- B. Planting trees
- C. Cycling to work
- D. Reading a printed weather map only

3. Climate Impacts, Risks and Adaptation

71. Which is a major effect of climate change?

- A. Removal of all storms
- B. Increase in polar ice everywhere
- C. Sea-level rise
- D. Permanent global cooling

72. Why do heatwaves become more dangerous in a warming climate?

- A. The Sun disappears
- B. Rainfall stops everywhere
- C. Higher average temperatures increase the chance of extreme heat events
- D. Clouds cannot form

73. Which group is often more vulnerable during heatwaves?

- A. People with unlimited cooling and no exposure
- B. Only deep-sea fish
- C. Older adults and outdoor workers
- D. Only polar ice sheets

74. What causes sea-level rise in a warming climate?

- A. Formation of new deserts
- B. Decrease in ocean volume
- C. Thermal expansion of seawater and melting land ice
- D. Growth of coral reefs only

75. Which coastal ecosystem can help reduce storm surge and erosion?

- A. Open coal mine
- B. Concrete landfill
- C. Dry parking lot
- D. Mangrove forest

76. What is coastal adaptation?

- A. Ignoring storm warnings
- B. Increasing beach pollution
- C. Actions that reduce risks from sea-level rise, erosion and coastal flooding
- D. Removing all wetlands

77. What is managed retreat?

- A. Moving forests into deserts by truck
- B. Stopping all adaptation
- C. Building more houses in flood zones without planning
- D. Planned movement of people or assets away from high-risk areas

78. What is ocean acidification?

- A. A decrease in ocean pH caused by absorbed CO₂
- B. A rise in ocean salinity only
- C. A process that turns oceans into freshwater
- D. The freezing of all oceans

79. Which organisms are especially affected by ocean acidification?

- A. Only city pigeons
- B. Shell-forming organisms such as some corals and mollusks
- C. Only desert cacti
- D. Only mountain goats

80. What is coral bleaching?

- A. The creation of new coral
- B. Loss of symbiotic algae from corals under stress
- C. The cleaning of beach sand
- D. Growth of snow on coral reefs

81. What is a marine heatwave?

- A. A cold desert storm
- B. A prolonged period of unusually warm ocean temperatures
- C. A forest fire under water
- D. A form of acid rain only

82. How can climate change affect rainfall?

- A. It only changes snowfall in deserts
- B. It makes rainfall identical everywhere
- C. It can shift rainfall patterns and intensify heavy rainfall in some regions
- D. It stops all monsoons permanently

83. Why can drought risk increase with warming?

- A. Higher temperatures increase evaporation and water demand
- B. Soils become permanently wet
- C. Glaciers grow everywhere
- D. Rain always doubles everywhere

84. What is a compound climate event?

- A. A single sunny day
- B. Only recycling plastic
- C. A laboratory chemical only
- D. Two or more hazards occurring together or sequentially, increasing risk

85. How can climate change affect human health?

- A. Through heat stress, air pollution, disease risks and food insecurity
- B. By making all water clean
- C. By eliminating all diseases
- D. By stopping floods

86. Which is a climate-related health adaptation measure?

- A. Cutting city trees
- B. Ignoring disease surveillance
- C. Increasing urban heat islands
- D. Heat early warning systems

87. What is a heat action plan?

- A. A plan to reduce heat-related risks through warnings, cooling centers and public guidance
- B. A plan to increase indoor heat
- C. A plan to remove all shade
- D. A plan to burn waste

88. Which urban action can reduce heat stress?

- A. Increasing waste burning
- B. Replacing parks with asphalt
- C. Removing all shade
- D. Increasing urban tree cover and cool roofs

89. Which is a nature-based solution for flood risk?

- A. Removing all vegetation
- B. Dumping solid waste in drains
- C. Paving river floodplains
- D. Restoring wetlands

90. What is maladaptation?

- A. A perfect climate solution

- B. A renewable energy source
- C. A type of rainfall
- D. An action intended to adapt that increases future risk or emissions

91. What is climate-smart agriculture?

- A. Farming without soil or water planning
- B. Farming that ignores climate risks
- C. Farming only in deserts
- D. Farming that aims to improve productivity, resilience and emission reduction

92. Which practice helps farmers adapt to drought?

- A. Removing all soil cover
- B. Efficient irrigation and drought-tolerant crop varieties
- C. Burning all crop residues
- D. Wasting irrigation water

93. How does climate change affect glaciers?

- A. It makes all glaciers grow rapidly
- B. It has no effect on ice
- C. It can increase melting and glacier retreat
- D. It converts glaciers into forests instantly

94. Why does changing snowpack matter?

- A. It prevents all rainfall
- B. It only changes the color of rocks
- C. It affects seasonal water storage and river flow
- D. It stops the carbon cycle

95. What is loss and damage in climate discussions?

- A. A new greenhouse gas
- B. Harms from climate change that cannot be avoided fully by mitigation or adaptation
- C. A solar panel design
- D. A type of composting

96. Which infrastructure is more climate-resilient?

- A. Infrastructure built without hazard assessment
- B. Infrastructure designed for future flood, heat and storm risks
- C. Infrastructure placed only in wetlands
- D. Infrastructure with blocked drains

97. How can early warning systems reduce climate risk?

- A. By giving people time to prepare before hazards occur
- B. By replacing all forecasts with rumors
- C. By stopping all hazards physically
- D. By increasing emissions

98. Which climate impact directly threatens small island and low-lying coastal areas?

- A. Increased mountain height
- B. Complete removal of waves
- C. Soil formation only
- D. Sea-level rise

99. What is saltwater intrusion?

- A. Removal of all salt from oceans
- B. Movement of seawater into freshwater aquifers or soils

- C. A type of air pollution
- D. A way to generate wind power

100. Which is an adaptation action for water scarcity?

- A. Polluting reservoirs
- B. Rainwater harvesting and efficient irrigation
- C. Leaking pipelines
- D. Uncontrolled groundwater pumping

101. How can wildfires be linked to climate change?

- A. Heat and drought can create drier fuels and longer fire seasons in some regions
- B. Wildfires are caused only by oceans
- C. Fires reduce all emissions permanently
- D. Climate change makes all fires impossible

102. What is the main goal of adaptation finance?

- A. Increasing fossil fuel subsidies only
- B. Funding only weather rumors
- C. Supporting communities and systems to prepare for and reduce climate impacts
- D. Preventing all environmental monitoring

103. Why are vulnerable communities often hit harder by climate impacts?

- A. They are unaffected by disasters
- B. They cause all climate change
- C. They may have higher exposure and fewer resources to prepare or recover
- D. They live outside the climate system

104. Which statement best describes climate risk?

- A. Risk results from hazards interacting with exposure and vulnerability
- B. Risk is unrelated to people or ecosystems
- C. Risk cannot be reduced
- D. Risk is only a temperature number

105. Which is a co-benefit of reducing fossil fuel use?

- A. Higher soot emissions
- B. More acid rain
- C. Improved air quality and reduced health burden
- D. More coal ash

4. Biodiversity, Ecosystems and Forests

106. What is biodiversity?

- A. Only the number of buildings in a city
- B. The variety of life at genetic, species and ecosystem levels
- C. Only the amount of rainfall
- D. Only the speed of wind

107. What is an ecosystem?

- A. A type of plastic
- B. A single chemical in air
- C. A community of organisms interacting with each other and their physical environment
- D. Only a factory chimney

108. What are ecosystem services?

- A. The number of animals in a zoo
- B. Benefits people obtain from ecosystems
- C. Only waste products from factories
- D. Only taxes on forests

109. Which is a regulating ecosystem service?

- A. Carbon storage by forests
- B. Production of plastic
- C. Noise from traffic
- D. Open dumping

110. Which ecosystem is known for blue carbon storage?

- A. Dry landfill cap
- B. Open desert pavement
- C. Urban highway
- D. Mangrove forest

111. Why are wetlands important?

- A. They have no ecological role
- B. They are always dry
- C. They store water, filter pollutants and support biodiversity
- D. They only produce smoke

112. What is habitat fragmentation?

- A. Joining all forests into one patch
- B. Making oceans less salty
- C. Breaking large habitats into smaller isolated patches
- D. Creating more rainfall from roads

113. Why are ecological corridors useful?

- A. They are only parking spaces
- B. They block all animal movement
- C. They increase isolation
- D. They connect habitats and allow species movement

114. What is a keystone species?

- A. A species with no ecological role
- B. A species with a disproportionately large effect on its ecosystem
- C. Only a domesticated animal
- D. The most colorful species only

115. What is a trophic cascade?

- A. Ecosystem changes that spread through food-web levels
- B. Only a waterfall in a forest
- C. A type of plastic recycling
- D. A new greenhouse gas

116. What is ecological resilience?

- A. The acidity of concrete
- B. The ability to avoid all change forever
- C. The ability of an ecosystem to absorb disturbance and recover
- D. The number of roads in a forest

117. How can climate change affect species ranges?

- A. Species may shift toward poles or higher elevations

- B. Species turn into rocks
- C. All habitats expand equally
- D. All species stay exactly where they are

118. What is phenology?

- A. The study of plastic bags only
- B. A type of fossil fuel
- C. Timing of biological events such as flowering, breeding or migration
- D. The measurement of traffic

119. Why are coral reefs vulnerable to warming?

- A. They are unaffected by water temperature
- B. They only live in glaciers
- C. Heat stress can cause bleaching and mortality
- D. They require smoke to survive

120. Which ecosystem is at risk from permafrost thaw?

- A. Urban parking lot only
- B. Deep ocean trench only
- C. Arctic tundra
- D. Tropical coral reef only

121. What is desertification?

- A. The creation of coral reefs
- B. The formation of glaciers
- C. Land degradation in drylands due to climate factors and human activities
- D. The purification of rivers

122. Which is an invasive species?

- A. A species that never reproduces
- B. Any native species in its natural habitat
- C. A plant in a botanical textbook
- D. A non-native species that spreads and causes ecological or economic harm

123. Why is pollination important?

- A. It supports reproduction of many flowering plants and food crops
- B. It creates earthquakes
- C. It increases plastic production
- D. It removes all carbon dioxide

124. Which action supports biodiversity conservation?

- A. Protecting habitats and reducing pollution
- B. Destroying wetlands
- C. Increasing illegal wildlife trade
- D. Fragmenting forests without corridors

125. What is ecological restoration?

- A. Replacing forests with asphalt
- B. Destroying native habitats
- C. Assisting the recovery of degraded ecosystems
- D. Increasing untreated sewage discharge

126. Why are tropical rainforests important for climate?

- A. They produce only plastic
- B. They have no relation to water cycles

- C. They are climate-neutral deserts
- D. They store carbon and influence rainfall and biodiversity

127. What is the Amazon rainforest's climate role?

- A. Producing fossil fuels
- B. Stopping photosynthesis
- C. Carbon storage, rainfall generation and regional climate regulation
- D. Increasing ocean salinity

128. What happens when forests are burned?

- A. Biodiversity always improves
- B. Carbon stored in biomass is released, often as CO₂ and other pollutants
- C. All carbon disappears
- D. Rainfall always increases

129. Why are peatland fires especially climate-relevant?

- A. They can release carbon accumulated over thousands of years
- B. They create glaciers
- C. They do not produce emissions
- D. They only burn oxygen

130. What is a biome?

- A. A single pollutant particle
- B. A type of engine
- C. A legal permit
- D. A large ecological region defined by climate, vegetation and dominant life forms

131. Which is a major threat to coral reefs?

- A. Ocean warming and acidification
- B. A complete lack of sunlight everywhere
- C. Excessive glacier growth
- D. Too much freshwater in deserts

132. What is biomagnification?

- A. Expansion of forests due to recycling
- B. A type of carbon sink
- C. Increase in concentration of certain pollutants at higher trophic levels
- D. Increase in rainfall with altitude only

133. What is bioaccumulation?

- A. Formation of clouds
- B. Reduction of all pollutants
- C. Movement of glaciers only
- D. Build-up of a substance in an organism over time

134. Why are seagrass meadows important?

- A. They are fossil fuels
- B. They only increase plastic litter
- C. They store carbon, stabilize sediments and provide habitat
- D. They have no role in coastal ecology

135. What does the IUCN Red List assess?

- A. Extinction risk of species
- B. Only national GDP
- C. The age of rocks only

D. Daily traffic levels

136. What is a protected area?

- A. A waste dump without rules
- B. A place where biodiversity must be removed
- C. A defined area managed for long-term conservation of nature
- D. A private parking zone only

137. Which practice can improve forest conservation?

- A. Conversion to degraded land
- B. Illegal logging
- C. Community-based management and monitoring
- D. Uncontrolled burning

138. Why does biodiversity loss matter for humans?

- A. It improves all health outcomes
- B. It has no economic or cultural value
- C. It weakens ecosystem services such as food, water purification and climate regulation
- D. It only affects museums

139. What is an ecological niche?

- A. A hole in a plastic bottle
- B. A tax law
- C. A kind of rainfall gauge
- D. The role and position of a species in its environment

140. Which is a climate-smart biodiversity action?

- A. Draining wetlands for short-term gain
- B. Clearing mangroves for dumping
- C. Burning peatlands
- D. Restoring mangroves for carbon storage, habitat and coastal protection

5. Pollution, Waste and Circular Economy

141. What is air pollution?

- A. Presence of harmful substances in the air at levels that can affect health or environment
- B. The natural color of clouds
- C. A type of renewable energy
- D. Only clean oxygen in forests

142. What does PM2.5 refer to?

- A. Fine particulate matter with diameter 2.5 micrometers or smaller
- B. A greenhouse gas molecule
- C. A type of clean water
- D. A solar panel size

143. Which pollutants mainly cause acid rain?

- A. Helium and neon
- B. Oxygen and argon
- C. Pure water vapor only
- D. Sulfur dioxide and nitrogen oxides

144. What is photochemical smog?

- A. A type of soil erosion

- B. Air pollution formed when sunlight reacts with NO_x and volatile organic compounds
- C. A method of composting
- D. A clean fog formed only by rain

145. Which pollutant is the main component of ground-level ozone pollution?

- A. Ozone in the stratosphere protecting from UV
- B. Pure nitrogen in air
- C. Water in rivers
- D. Ozone formed near the surface from precursor gases

146. What is water pollution?

- A. Contamination of water bodies by harmful substances or conditions
- B. Evaporation of pure water
- C. Only natural rainfall
- D. A clean river with no contaminants

147. What is eutrophication?

- A. Nutrient enrichment causing algal blooms and oxygen depletion
- B. Formation of desert dunes
- C. A type of solar energy
- D. Removal of all nutrients from water

148. Which nutrients commonly drive eutrophication?

- A. Gold and silver
- B. Oxygen and helium
- C. Sand and gravel
- D. Nitrogen and phosphorus

149. What does BOD measure?

- A. Biodiversity of deserts only
- B. Biochemical oxygen demand from organic matter decomposition
- C. Building occupancy density
- D. Battery output duration

150. What does COD measure?

- A. Cloud ozone density
- B. Crop oxygen demand only
- C. Carbon output of deserts
- D. Chemical oxygen demand of oxidizable substances in water

151. What is soil pollution?

- A. The natural presence of earthworms
- B. Healthy soil formation
- C. Contamination of soil by harmful chemicals, waste or excess substances
- D. Only rainfall on farms

152. Which is an example of a heavy metal pollutant?

- A. Hydrogen
- B. Lead
- C. Oxygen
- D. Nitrogen

153. What is bioaccumulation of pollutants?

- A. The growth of clean plants only
- B. Build-up of pollutants in an organism over time

- C. A method of wind power generation
- D. Complete breakdown of all pollutants instantly

154. What are microplastics?

- A. Large rocks in rivers
- B. Natural rainfall droplets
- C. Pure organic compost
- D. Plastic particles generally smaller than 5 millimeters

155. Which action reduces plastic pollution most directly?

- A. Mixing plastic with food waste
- B. Throwing plastics into rivers
- C. Burning plastic openly
- D. Reducing single-use plastics and improving waste management

156. What is e-waste?

- A. Clean rainwater
- B. Crop residues only
- C. Discarded electrical and electronic equipment
- D. Only organic kitchen waste

157. Why is informal e-waste recycling risky?

- A. It always removes all pollution
- B. It produces only oxygen
- C. It can expose workers and communities to toxic metals and chemicals
- D. It requires no safety controls

158. What is Extended Producer Responsibility?

- A. A type of fossil fuel
- B. A rule that consumers must burn waste
- C. A policy approach making producers responsible for products after use
- D. A method of rainfall prediction

159. What is source segregation of waste?

- A. Burning waste in open areas
- B. Separating waste at the point of generation into categories
- C. Dumping waste in drains
- D. Mixing all waste together

160. Which waste type is best suited for composting?

- A. Biodegradable organic waste
- B. Used batteries
- C. Broken fluorescent lamps
- D. Lead paint waste

161. What is leachate?

- A. A tree seed
- B. Contaminated liquid that drains from waste deposits or landfills
- C. Pure distilled water
- D. A type of wind turbine

162. What is sanitary landfill?

- A. Engineered waste disposal facility with liners, leachate and gas controls
- B. A compost pile only
- C. A rainwater tank

- D. An open dump without controls

163. Why is open burning of waste harmful?

- A. It purifies the air
- B. It releases toxic pollutants, particles and greenhouse gases
- C. It creates clean drinking water
- D. It removes all climate risk

164. What is the circular economy?

- A. A system that ignores resources
- B. A system based only on disposal
- C. A system where all products are single-use
- D. A system that keeps materials in use through reduce, reuse, repair, recycle and redesign

165. Which option is highest in the waste hierarchy?

- A. Uncontrolled dumping
- B. Prevention and reduction
- C. Open burning
- D. Landfilling

166. Which is an example of reuse?

- A. Throwing it into a river
- B. Burning it after one use
- C. Using a glass jar again for storage
- D. Mixing it with hazardous waste

167. What is recycling?

- A. Using all products only once
- B. Processing waste materials into new materials or products
- C. Dumping waste in open land
- D. Burning waste without controls

168. What is upcycling?

- A. Creating a higher-value product from discarded materials
- B. Burning recyclable materials
- C. Making waste more toxic
- D. Turning clean water into sewage

169. What is life cycle assessment?

- A. A method to evaluate environmental impacts across a product's life cycle
- B. A medical test only
- C. A weather forecast model only
- D. A tree-counting exercise only

170. What does cradle-to-grave mean in LCA?

- A. Only factory gate emissions
- B. Only the purchase stage
- C. Assessment from raw material extraction to disposal
- D. Only product advertising

171. Which wastewater treatment step removes larger solids first?

- A. Disinfection only at the start
- B. Screening and primary treatment
- C. Desalination only
- D. Advanced oxidation only

172. What is disinfection in wastewater treatment?

- A. Adding raw sewage to rivers
- B. Increasing pathogen levels
- C. Killing or inactivating pathogens before discharge or reuse
- D. Removing all oxygen from water

173. What is a persistent organic pollutant?

- A. A clean water molecule
- B. A harmless nutrient that disappears instantly
- C. A renewable energy device
- D. A toxic organic chemical that resists degradation and can bioaccumulate

174. Which practice supports safer hazardous waste management?

- A. Dumping it in open drains
- B. Burning it at home
- C. Mixing it with kitchen waste
- D. Labeling, segregation, secure storage and authorized treatment

175. Which action reduces both waste and emissions?

- A. Buying more single-use items
- B. Repairing products instead of replacing them quickly
- C. Throwing electronics into mixed waste
- D. Open burning of plastics

6. Water, Agriculture and Food Systems

176. What is the water cycle?

- A. Only water stored in bottles
- B. Movement of water through evaporation, condensation, precipitation, runoff and infiltration
- C. Only ocean salinity
- D. A type of plastic recycling

177. What is groundwater?

- A. Only water inside plants
- B. Only water in clouds
- C. Only seawater
- D. Water stored underground in soil and rock spaces

178. What is an aquifer?

- A. A rain cloud
- B. A geological formation that stores and transmits groundwater
- C. A composting bin
- D. A type of air pollutant

179. What is watershed management?

- A. Managing land, water and ecosystems within a drainage basin
- B. Managing only bottled water sales
- C. Removing all vegetation from hills
- D. Ignoring upstream-downstream links

180. Which method improves irrigation efficiency?

- A. Irrigating at hottest hours only
- B. Flooding fields without control

- C. Drip irrigation
- D. Leaking canals

181. What is rainwater harvesting?

- A. Removing clouds
- B. Increasing runoff pollution
- C. Collecting and storing rainwater for later use or recharge
- D. Dumping wastewater into rivers

182. What is soil erosion?

- A. Removal of topsoil by water, wind or human activity
- B. Formation of clean drinking water
- C. Growth of coral reefs
- D. Reduction of all sediments

183. Which practice reduces soil erosion?

- A. Maintaining ground cover and contour farming
- B. Deforestation on steep slopes
- C. Leaving soil bare on slopes
- D. Overgrazing

184. What is sustainable agriculture?

- A. Agriculture that meets food needs while protecting soil, water, biodiversity and future productivity
- B. Agriculture that wastes water deliberately
- C. Agriculture without ecological concern
- D. Agriculture based only on soil degradation

185. What is agroforestry?

- A. Removing all trees from farms
- B. Integrating trees with crops or livestock systems
- C. Growing only crops under plastic waste
- D. Burning all crop residues

186. What is integrated pest management?

- A. Removing all natural enemies
- B. Using only excessive pesticides
- C. Ignoring all pest problems
- D. Combining biological, cultural, mechanical and careful chemical methods to manage pests

187. How can excessive fertilizer use harm the environment?

- A. It stops all algal blooms
- B. It can cause nutrient runoff and nitrous oxide emissions
- C. It creates more clean water
- D. It always removes pollution

188. Which agricultural system commonly emits methane?

- A. Dry solar farms
- B. Rice paddies under flooded conditions
- C. Wind farms
- D. Recycling centers only

189. Why does livestock contribute to methane emissions?

- A. Methane is only from oceans
- B. Ruminants produce methane during digestion
- C. Cattle absorb all methane

D. Livestock never emit gases

190. How does food waste contribute to climate change?

- A. It cools the planet automatically
- B. It stops fertilizer use
- C. It absorbs all CO₂
- D. It wastes production emissions and can produce methane in landfills

191. What is a water footprint?

- A. Only the shape of a river
- B. Only sea wave height
- C. A type of glacier
- D. Total freshwater used directly and indirectly to produce goods or services

192. What is virtual water?

- A. Water embedded in the production of traded goods and food
- B. Only desalinated seawater
- C. Imaginary water with no meaning
- D. Only water in clouds

193. What is salinization of soil?

- A. Increase in soil biodiversity only
- B. Formation of freshwater lakes
- C. Accumulation of salts in soil that can reduce plant growth
- D. Removal of all minerals from soil

194. Which action supports climate-smart food systems?

- A. Increasing post-harvest losses
- B. Burning all crop residues
- C. Reducing food waste and improving storage
- D. Wasting irrigation water

195. How can wetlands improve water quality?

- A. They trap sediments and help remove nutrients and pollutants
- B. They produce only smoke
- C. They add plastic to rivers
- D. They remove all water permanently

196. What is drought?

- A. A permanent flood
- B. A prolonged period of unusually low water availability
- C. A type of fossil fuel
- D. A daily short shower

197. What is floodplain?

- A. A desert mountain peak
- B. A dry roof surface
- C. Low-lying land near a river that can flood during high flows
- D. A groundwater pump

198. Why should construction on floodplains be planned carefully?

- A. It creates more wetlands automatically
- B. It eliminates all floods
- C. It increases groundwater recharge always
- D. It can increase exposure to flood damage and reduce natural flood storage

199. What is desalination?

- A. Increasing ocean salinity
- B. Removing salts from seawater or brackish water
- C. Cleaning air pollution only
- D. Adding plastic to water

200. Which farming practice can build soil organic carbon?

- A. Adding compost and maintaining cover crops
- B. Burning residues every season
- C. Over-tilling bare soil
- D. Removing all organic matter

201. What is conservation agriculture?

- A. Growing no crops
- B. Maximum erosion and bare soil
- C. Minimum soil disturbance, permanent soil cover and crop diversification
- D. Uncontrolled pesticide use only

202. How can climate change affect fisheries?

- A. It removes all marine food webs
- B. Ocean warming and acidification can change fish distribution and productivity
- C. It affects only mountains
- D. It makes all fish populations increase equally

203. Which is a water pollution source in agriculture?

- A. Rainwater harvesting tanks only
- B. Drip irrigation pipes only
- C. Runoff carrying fertilizers and pesticides
- D. Organic mulching with no runoff

204. What is sustainable diet in environmental terms?

- A. A diet with no concern for health
- B. A diet with lower environmental impacts and adequate nutrition
- C. A diet based only on food waste
- D. A diet that requires maximum emissions

205. Why is soil health important for climate resilience?

- A. Healthy soil causes only floods
- B. Healthy soil stores water, supports roots and can store carbon
- C. Soil cannot interact with climate
- D. Soil health has no effect on crops

7. Renewable Energy and Sustainable Living

206. Which is a renewable energy source?

- A. Solar energy
- B. Diesel
- C. Petroleum coke
- D. Coal

207. How do solar photovoltaic panels generate electricity?

- A. By burning coal
- B. By converting sunlight directly into electricity

- C. By filtering seawater
- D. By increasing methane leakage

208. What is wind energy?

- A. Energy from untreated sewage only
- B. Energy from burning plastic
- C. Electricity generated from the kinetic energy of moving air
- D. Energy from diesel exhaust

209. Which is a limitation of solar and wind energy?

- A. They require no land or materials
- B. They stop all energy demand
- C. They always emit more CO₂ than coal during operation
- D. They can be variable and need storage or grid management

210. What is energy storage useful for?

- A. Increasing coal ash
- B. Reducing all electricity access
- C. Making grids less flexible
- D. Balancing supply and demand when renewable output varies

211. What is hydropower?

- A. Electricity generated from moving or falling water
- B. Power from traffic noise only
- C. Electricity from burning oil
- D. Heat from plastic waste only

212. Which concern can be associated with large dams?

- A. No effect on rivers
- B. No social issues ever
- C. Zero environmental impact everywhere
- D. Ecosystem disruption and displacement

213. What is geothermal energy?

- A. Energy from plastic bags
- B. Energy from artificial lights only
- C. Energy from traffic smoke
- D. Energy from heat within the Earth

214. What is sustainable consumption?

- A. Using goods and services in ways that reduce environmental impact and resource depletion
- B. Increasing avoidable waste
- C. Buying more single-use products
- D. Ignoring product life cycles

215. Which transport choice generally reduces emissions per passenger?

- A. Unnecessary idling
- B. Frequent short flights when alternatives exist
- C. Public transport when well used
- D. Single-occupancy fossil-fuel car use for every trip

216. What is modal shift?

- A. Changing the color of vehicles only
- B. Switching from walking to idling cars
- C. Changing from higher-emission to lower-emission transport modes

D. Increasing transport waste

217. Which building measure improves energy efficiency?

- A. No maintenance of equipment
- B. Leaky windows and poor shading
- C. Insulation and passive cooling design
- D. Oversized inefficient cooling

218. What is a heat pump?

- A. A type of plastic bottle
- B. A device that moves heat efficiently for heating or cooling
- C. A device that produces only methane
- D. A coal furnace only

219. What is a green roof?

- A. A roof painted with toxic waste
- B. A roof partially or fully covered with vegetation and growing medium
- C. A roof used only for coal storage
- D. A roof without drainage

220. What is demand response?

- A. Adjusting electricity use in response to grid conditions or prices
- B. Using energy without measurement
- C. Increasing demand at all peak times
- D. Removing all meters

221. What is a smart grid?

- A. A system without communication
- B. A type of forest
- C. A grid made of plastic waste only
- D. An electricity network using digital monitoring and control for efficiency and flexibility

222. Which is an example of greenwashing?

- A. Providing transparent life-cycle data
- B. Reducing emissions with verified targets
- C. Making misleading environmental claims about a product or company
- D. Publishing audited environmental reports

223. Why should carbon offsets be used carefully?

- A. They can vary in quality and should not replace direct emission reductions
- B. They are the only climate solution
- C. They always eliminate all emissions instantly
- D. They require no verification

224. What is eco-design?

- A. Designing products to reduce environmental impacts across their life cycle
- B. Ignoring repairability
- C. Maximizing waste
- D. Designing products to fail quickly

225. Which product choice supports circularity?

- A. Choosing disposable products with no recycling path
- B. Choosing durable and repairable products
- C. Buying duplicates unnecessarily
- D. Discarding working products

226. What is sustainable procurement?

- A. Purchasing goods and services with environmental and social criteria
- B. Avoiding all product information
- C. Buying the cheapest option regardless of harm
- D. Ignoring suppliers and materials

227. What is low-carbon lifestyle action?

- A. Open burning waste
- B. Using inefficient appliances by choice
- C. Increasing avoidable emissions
- D. Reducing energy use, waste and high-emission consumption where possible

228. Which household action saves electricity?

- A. Turning off unused appliances and using efficient devices
- B. Leaving all devices on constantly
- C. Using old inefficient bulbs
- D. Cooling rooms with doors open

229. What is the environmental benefit of repair cafes or repair services?

- A. They prevent reuse
- B. They extend product life and reduce waste
- C. They encourage immediate disposal
- D. They increase illegal dumping

230. Why is life-cycle thinking important for renewable technologies?

- A. It measures only product color
- B. It assumes all technologies have zero impact always
- C. It ignores all supply chains
- D. It considers material extraction, manufacturing, use and end-of-life impacts

8. Environmental Governance, Methods and India Context

231. What is the Paris Agreement?

- A. A law banning all rainfall
- B. A local waste bin design
- C. A treaty about football rules
- D. An international climate agreement to limit global warming and strengthen climate action

232. What are Nationally Determined Contributions?

- A. A type of ocean wave
- B. A private recycling label only
- C. A unit of rainfall
- D. Country climate action plans under the Paris Agreement

233. What is environmental impact assessment?

- A. A process to evaluate likely environmental effects before a project is approved
- B. A type of compost
- C. A method to ignore pollution
- D. A daily weather report

234. What is the precautionary principle?

- A. Lack of full certainty should not delay action when serious environmental harm is possible
- B. Pollution should always be ignored

- C. Only economic costs matter
- D. Action should wait until damage is irreversible

235. What is the polluter pays principle?

- A. Those who cause pollution should bear the costs of managing it
- B. Victims should always pay for pollution
- C. Pollution has no cost
- D. Only forests should pay

236. What is carbon pricing?

- A. Paying people to waste energy
- B. Pricing only oxygen
- C. Putting a price on greenhouse gas emissions through taxes or trading systems
- D. Making renewable energy illegal

237. What is an emissions trading system?

- A. A ban on all monitoring
- B. A market-based system where emission allowances can be traded under a cap
- C. A type of wetland
- D. A system for trading rainfall

238. What does MRV mean in climate governance?

- A. Measurement, reporting and verification
- B. Methane removal vehicle
- C. Marine rainfall value
- D. Municipal river volume only

239. What is a greenhouse gas inventory?

- A. A waste bin color chart only
- B. A list of city parks only
- C. A record of rainfall poems
- D. A systematic accounting of emissions and removals by sources and sinks

240. What is environmental monitoring?

- A. Only writing slogans
- B. Regular measurement of environmental conditions such as air, water, soil or biodiversity
- C. A way to avoid regulation
- D. Guessing pollution levels without data

241. What is Air Quality Index?

- A. A measure of soil fertility only
- B. A forest carbon model only
- C. A simplified scale that communicates air pollution levels and health concern
- D. A water hardness test only

242. What is sustainability?

- A. Replacing all ecosystems with roads
- B. Using resources as fast as possible
- C. Meeting present needs without compromising future generations' ability to meet theirs
- D. Ignoring environmental limits

243. What are the Sustainable Development Goals?

- A. A type of weather forecast
- B. A set of global goals adopted by the United Nations for sustainable development
- C. A local gardening club rule

- D. A list of private company slogans only

244. Which SDG focuses on climate action?

- A. SDG 2 only
- B. SDG 13
- C. SDG 5 only
- D. SDG 17 only

245. What is ecological footprint?

- A. A cloud pattern
- B. A footprint of an animal only
- C. A type of water pollutant
- D. A measure of human demand on biologically productive land and water

246. What is carrying capacity?

- A. The cost of transport
- B. The number of books in a library
- C. The weight of a vehicle only
- D. The maximum population or activity level an environment can support sustainably

247. What is environmental education?

- A. Only memorizing company names
- B. A method to increase pollution
- C. A type of fossil fuel
- D. Learning that builds awareness, knowledge and action for environmental protection

248. What is citizen science?

- A. A form of waste dumping
- B. Science done only by satellites without people
- C. A legal ban on monitoring
- D. Public participation in scientific data collection or analysis

249. Which institution is commonly associated with pollution control standards in India?

- A. World Chess Federation
- B. Aviation weather channel only
- C. International Olympic Committee
- D. Central Pollution Control Board

250. Which local action supports urban climate governance?

- A. Blocking drains with waste
- B. Removing all green spaces
- C. Ward-level waste segregation, tree protection and flood-risk mapping
- D. Ignoring heat risks

Part B: Quick Answer Key

Use this table for quick checking. Detailed explanations follow after this section.

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	51	D	101	A	151	C	201	C
2	B	52	D	102	C	152	B	202	B
3	A	53	B	103	C	153	B	203	C
4	B	54	B	104	A	154	D	204	B
5	B	55	A	105	C	155	D	205	B
6	B	56	A	106	B	156	C	206	A
7	B	57	A	107	C	157	C	207	B
8	C	58	A	108	B	158	C	208	C
9	B	59	C	109	A	159	B	209	D
10	C	60	D	110	D	160	A	210	D
11	C	61	A	111	C	161	B	211	A
12	A	62	D	112	C	162	A	212	D
13	B	63	D	113	D	163	B	213	D
14	A	64	C	114	B	164	D	214	A
15	C	65	D	115	A	165	B	215	C
16	A	66	A	116	C	166	C	216	C
17	A	67	A	117	A	167	B	217	C
18	B	68	A	118	C	168	A	218	B
19	C	69	B	119	C	169	A	219	B
20	D	70	A	120	C	170	C	220	A
21	C	71	C	121	C	171	B	221	D
22	B	72	C	122	D	172	C	222	C
23	A	73	C	123	A	173	D	223	A
24	B	74	C	124	A	174	D	224	A
25	D	75	D	125	C	175	B	225	B
26	A	76	C	126	D	176	B	226	A
27	A	77	D	127	C	177	D	227	D
28	B	78	A	128	B	178	B	228	A
29	A	79	B	129	A	179	A	229	B
30	D	80	B	130	D	180	C	230	D
31	B	81	B	131	A	181	C	231	D
32	D	82	C	132	C	182	A	232	D
33	D	83	A	133	D	183	A	233	A
34	D	84	D	134	C	184	A	234	A
35	D	85	A	135	A	185	B	235	A
36	D	86	D	136	C	186	D	236	C
37	C	87	A	137	C	187	B	237	B
38	B	88	D	138	C	188	B	238	A
39	B	89	D	139	D	189	B	239	D
40	D	90	D	140	D	190	D	240	B
41	C	91	D	141	A	191	D	241	C
42	C	92	B	142	A	192	A	242	C
43	B	93	C	143	D	193	C	243	B
44	D	94	C	144	B	194	C	244	B
45	A	95	B	145	D	195	A	245	D
46	C	96	B	146	A	196	B	246	D
47	A	97	A	147	A	197	C	247	D
48	A	98	D	148	D	198	D	248	D
49	B	99	B	149	B	199	B	249	D
50	C	100	B	150	D	200	A	250	C

Part C: Answer Key with Short Explanations

1. Climate Change Fundamentals

- 1. B - Long-term shifts in climate patterns.** Climate change refers to long-term shifts in temperature, rainfall, wind, sea level and other climate patterns.
- 2. B - A long-term rise in Earth's average surface temperature.** Global warming is the long-term increase in Earth's average temperature, largely due to heat-trapping greenhouse gases.
- 3. A - Weather is daily or short-term conditions; climate is long-term average patterns.** Weather describes short-term conditions, while climate describes long-term averages and patterns over decades.
- 4. B - The trapping of heat by certain gases in the atmosphere.** Greenhouse gases absorb and re-emit infrared radiation, helping keep Earth warm. Excess greenhouse gases enhance this effect.
- 5. B - Carbon dioxide.** Carbon dioxide is a major greenhouse gas. Oxygen, nitrogen and helium do not trap heat in the same significant way.
- 6. B - A change in Earth's energy balance caused by a factor such as greenhouse gases or aerosols.** Radiative forcing measures how a factor changes the balance between incoming solar energy and outgoing heat energy.
- 7. B - The reflectivity of a surface.** Albedo is the fraction of sunlight reflected by a surface. Snow and ice have high albedo; oceans and forests usually have lower albedo.
- 8. C - Fresh snow.** Fresh snow reflects a large share of incoming sunlight and therefore has high albedo.
- 9. B - A process that amplifies the original change.** Positive feedbacks amplify change. For example, melting ice lowers albedo, which can increase heat absorption and further warming.
- 10. C - A process that counteracts the original change.** Negative feedbacks reduce or counteract an initial change, helping stabilize a system.
- 11. C - Natural or short-term fluctuations around long-term climate patterns.** Climate variability includes natural fluctuations such as seasonal, annual or multi-year changes, including events like El Nino and La Nina.
- 12. A - Phases of natural ocean-atmosphere variability in the Pacific.** El Nino and La Nina are phases of the El Nino-Southern Oscillation, which affects rainfall and temperature patterns globally.
- 13. B - IPCC.** The Intergovernmental Panel on Climate Change (IPCC) assesses climate science, impacts, adaptation and mitigation.
- 14. A - Reducing greenhouse gas emissions and increasing carbon sinks.** Mitigation reduces the causes of climate change by cutting emissions or increasing carbon storage.
- 15. C - Preparing for and reducing damage from climate impacts.** Adaptation includes actions such as flood protection, heat action plans and climate-resilient farming.
- 16. A - The ability to prepare for, withstand and recover from climate-related stresses.** Resilience is the capacity of people, ecosystems or infrastructure to handle climate shocks and recover.
- 17. A - The tendency of a system or community to be harmed by climate impacts.** Vulnerability depends on exposure, sensitivity and adaptive capacity.
- 18. B - Presence of people, ecosystems or assets in places that could be affected by climate hazards.** Exposure is about whether people or assets are located where climate hazards can affect them.
- 19. C - Remaining emissions are balanced by removals.** Net zero means greenhouse gas emissions released are balanced by equivalent removals over a defined period.
- 20. D - Balancing emitted carbon dioxide with avoided or removed carbon dioxide.** Carbon neutrality usually refers to balancing CO₂ emissions with reductions, removals or credible offsets.
- 21. C - The amount of CO₂ that can be emitted while keeping warming within a chosen limit.** A carbon budget links cumulative CO₂ emissions to a temperature goal, such as limiting warming.
- 22. B - A threshold beyond which a climate system may shift into a new state.** Tipping points involve critical thresholds where changes may become self-reinforcing or difficult to reverse.
- 23. A - Thawing permafrost releasing methane and carbon dioxide.** Permafrost stores organic carbon. Thawing can allow decomposition and release greenhouse gases.
- 24. B - All frozen parts of Earth such as glaciers, ice sheets, snow and sea ice.** The cryosphere includes snow, ice, glaciers, ice caps, ice sheets, permafrost and sea ice.

- 25. D - Oceans absorb much of the excess heat trapped by greenhouse gases.** Oceans store a large amount of excess heat, influencing sea level, storms and marine ecosystems.
- 26. A - Urban areas being warmer due to buildings, roads and reduced vegetation.** Concrete, asphalt, buildings and limited vegetation can make cities warmer than surrounding areas.
- 27. A - Installing solar power to reduce coal electricity use.** Renewable energy reduces fossil fuel emissions, so it is a mitigation action.
- 28. B - Developing a heat action plan for a city.** Heat action plans help communities cope with heat risks and are an adaptation measure.
- 29. A - Fairness in who causes climate change, who suffers its impacts and who receives support.** Climate justice focuses on equity, responsibility, vulnerability and fair support for affected communities.
- 30. D - Additional benefits such as cleaner air or better health from climate policies.** Many climate actions also improve health, reduce pollution, protect ecosystems or save energy.
- 31. B - They help distinguish long-term trends from short-term variability.** Long-term records reveal trends that short-term observations may miss.
- 32. D - Information about past climates from ice cores, sediments, tree rings and fossils.** Paleoclimate records help scientists understand climate changes before modern instruments existed.
- 33. D - Methods that remove CO₂ from the atmosphere and store it.** Carbon dioxide removal includes approaches such as afforestation, soil carbon storage and direct air capture, though each has limits.
- 34. D - Uncertainty means risks may be larger or smaller, so precaution and risk management are needed.** Scientific uncertainty does not mean ignorance; it is part of risk assessment and often supports precautionary action.
- 35. D - Recent warming is mainly driven by human activities that increase greenhouse gases.** Multiple lines of evidence show that human-caused greenhouse gas increases are the dominant driver of recent warming.

2. Greenhouse Gases, Carbon Cycle and Energy

- 36. D - Carbon dioxide.** Carbon dioxide is the largest long-lived contributor to anthropogenic warming because of its volume and persistence.
- 37. C - Methane.** Methane has a higher global warming potential than CO₂ over short time horizons, though it is present in smaller amounts.
- 38. B - A measure comparing how much heat a greenhouse gas traps relative to CO₂ over a time period.** Global warming potential compares the heat-trapping effect of different gases relative to CO₂.
- 39. B - Burning coal for electricity.** Burning coal releases carbon stored underground into the atmosphere as CO₂.
- 40. D - Livestock digestion.** Ruminant livestock release methane during enteric fermentation.
- 41. C - Use of nitrogen fertilizers in agriculture.** Nitrogen fertilizers can lead to nitrous oxide emissions through soil microbial processes.
- 42. C - It releases stored carbon and reduces future carbon absorption.** When forests are cut or burned, stored carbon is released and fewer trees remain to absorb CO₂.
- 43. B - Photosynthesis.** Plants use photosynthesis to absorb CO₂ and store carbon in biomass.
- 44. D - Release of CO₂ by organisms as they use energy.** Respiration releases CO₂ as organisms break down organic matter for energy.
- 45. A - Forests.** Forests can absorb and store carbon in vegetation and soils when they are healthy and growing.
- 46. C - Carbon stored in coastal and marine ecosystems such as mangroves, salt marshes and seagrasses.** Blue carbon ecosystems store large amounts of carbon in vegetation and sediments.
- 47. A - They store very large amounts of carbon in waterlogged soils.** Waterlogged peat slows decomposition, allowing carbon to accumulate over long periods.
- 48. A - Stored carbon can oxidize or burn, releasing greenhouse gases.** Drainage exposes peat to oxygen and fire risk, causing large carbon emissions.
- 49. B - Natural gas.** Natural gas is a fossil fuel formed from ancient organic matter.
- 50. C - It releases CO₂ from energy use and chemical conversion of limestone.** Cement production emits CO₂ from fuel combustion and calcination of limestone.
- 51. D - Emissions produced per unit of energy or economic output.** Carbon intensity describes how emission-heavy an activity, fuel, grid or economy is.

- 52. D - Average emissions per unit of electricity generated or consumed from a power grid.** Grid emission factors help estimate emissions from electricity use.
- 53. B - Wind power.** Wind turbines generate electricity without burning fuel during operation.
- 54. B - Using less energy to provide the same service.** Energy efficiency reduces energy demand and often lowers emissions and costs.
- 55. A - Replacing incandescent bulbs with LED bulbs.** LEDs provide light using much less electricity than incandescent bulbs.
- 56. A - Soot particles from incomplete combustion that absorb sunlight and warm the atmosphere.** Black carbon is a short-lived climate pollutant and health-damaging air pollutant.
- 57. A - Tiny solid or liquid particles suspended in air.** Aerosols can affect climate by scattering or absorbing sunlight and changing cloud properties.
- 58. A - Sulfate aerosol.** Sulfate aerosols can reflect incoming sunlight, creating a cooling effect, though they harm air quality.
- 59. C - Direct emissions from sources owned or controlled by an organization.** Scope 1 covers direct organizational emissions, such as fuel combustion in owned boilers or vehicles.
- 60. D - Indirect emissions from purchased electricity, steam, heating or cooling.** Scope 2 emissions come from energy purchased and consumed by an organization.
- 61. A - Other indirect emissions in the value chain.** Scope 3 includes upstream and downstream emissions such as suppliers, travel, waste and product use.
- 62. D - Increasing soil organic matter through sustainable land management.** Practices that build soil organic matter can increase soil carbon storage.
- 63. D - Capturing and storing carbon in vegetation, soils, geological formations or products.** Carbon sequestration is the storage of carbon away from the atmosphere.
- 64. C - Anaerobic decomposition of organic waste.** Organic waste decomposes without oxygen in landfills and can produce methane.
- 65. D - Composting source-separated organic waste.** Composting organics under managed aerobic conditions reduces methane generation compared with unmanaged landfills.
- 66. A - They can have very high global warming potentials.** Some fluorinated gases trap much more heat per unit mass than CO₂, although emitted in smaller amounts.
- 67. A - Capturing CO₂ from sources or air and storing it long term.** CCS aims to capture CO₂ and store it in geological formations or other long-term reservoirs.
- 68. A - Improving insulation and efficient cooling or heating systems.** Insulation, efficient systems and passive design reduce energy demand and emissions.
- 69. B - The total greenhouse gas emissions linked to a person, activity, product or organization.** A carbon footprint estimates direct and indirect greenhouse gas emissions, often in CO₂ equivalent.
- 70. A - Using data and devices powered by electricity from fossil fuels.** Digital devices, networks and data centers consume electricity; emissions depend on energy sources and efficiency.

3. Climate Impacts, Risks and Adaptation

- 71. C - Sea-level rise.** Sea level rises due to thermal expansion of seawater and melting land ice.
- 72. C - Higher average temperatures increase the chance of extreme heat events.** A warmer baseline can make very hot days and nights more frequent or intense.
- 73. C - Older adults and outdoor workers.** Older adults, outdoor workers, children and people with health conditions are more vulnerable to heat stress.
- 74. C - Thermal expansion of seawater and melting land ice.** Warming expands seawater and melting glaciers and ice sheets add water to oceans.
- 75. D - Mangrove forest.** Mangroves can reduce wave energy, trap sediments and protect shorelines.
- 76. C - Actions that reduce risks from sea-level rise, erosion and coastal flooding.** Coastal adaptation includes planning, ecosystem protection, flood defenses and sometimes managed retreat.
- 77. D - Planned movement of people or assets away from high-risk areas.** Managed retreat is a deliberate strategy to reduce exposure in areas where protection is not sustainable.
- 78. A - A decrease in ocean pH caused by absorbed CO₂.** CO₂ dissolves in seawater and changes carbonate chemistry, lowering pH.

- 79. B - Shell-forming organisms such as some corals and mollusks.** Acidification makes it harder for many calcifying organisms to build shells or skeletons.
- 80. B - Loss of symbiotic algae from corals under stress.** Heat stress can cause corals to expel algae, making them white and weakened.
- 81. B - A prolonged period of unusually warm ocean temperatures.** Marine heatwaves can stress marine ecosystems, fisheries, kelp forests and coral reefs.
- 82. C - It can shift rainfall patterns and intensify heavy rainfall in some regions.** A warmer atmosphere holds more moisture, but regional rainfall changes depend on circulation and geography.
- 83. A - Higher temperatures increase evaporation and water demand.** Warming increases evaporation and can intensify water stress when rainfall is limited.
- 84. D - Two or more hazards occurring together or sequentially, increasing risk.** Compound events such as heat plus drought or storm surge plus high tide can create severe impacts.
- 85. A - Through heat stress, air pollution, disease risks and food insecurity.** Climate change influences multiple health pathways, including heat, disasters, water and disease vectors.
- 86. D - Heat early warning systems.** Early warning systems help reduce deaths and illness during heatwaves or other hazards.
- 87. A - A plan to reduce heat-related risks through warnings, cooling centers and public guidance.** Heat action plans help cities prepare for and respond to extreme heat.
- 88. D - Increasing urban tree cover and cool roofs.** Trees and cool roofs reduce heat absorption and improve thermal comfort.
- 89. D - Restoring wetlands.** Wetlands can store water, slow runoff and reduce flood peaks.
- 90. D - An action intended to adapt that increases future risk or emissions.** For example, adaptation that encourages development in high-risk zones can increase future vulnerability.
- 91. D - Farming that aims to improve productivity, resilience and emission reduction.** Climate-smart agriculture integrates adaptation, mitigation and food-security goals.
- 92. B - Efficient irrigation and drought-tolerant crop varieties.** Water-saving technologies and resilient varieties reduce drought vulnerability.
- 93. C - It can increase melting and glacier retreat.** Warming accelerates melt in many glacier regions, affecting sea level and water supply.
- 94. C - It affects seasonal water storage and river flow.** Snowpack stores water and releases it during warmer months, supporting rivers and irrigation.
- 95. B - Harms from climate change that cannot be avoided fully by mitigation or adaptation.** Loss and damage refers to irreversible or residual climate harms, such as loss of land, culture or ecosystems.
- 96. B - Infrastructure designed for future flood, heat and storm risks.** Resilient infrastructure considers future climate hazards, not only past averages.
- 97. A - By giving people time to prepare before hazards occur.** Warnings can save lives when linked to communication, preparedness and response capacity.
- 98. D - Sea-level rise.** Sea-level rise increases flooding, erosion, saltwater intrusion and displacement risk.
- 99. B - Movement of seawater into freshwater aquifers or soils.** Sea-level rise and groundwater overuse can allow saline water to contaminate freshwater resources.
- 100. B - Rainwater harvesting and efficient irrigation.** Capturing rainwater and using water efficiently can reduce scarcity risks.
- 101. A - Heat and drought can create drier fuels and longer fire seasons in some regions.** Climate change can increase conditions that favor fires, though ignition and land management also matter.
- 102. C - Supporting communities and systems to prepare for and reduce climate impacts.** Adaptation finance helps pay for resilience measures such as flood defenses, drought planning and resilient agriculture.
- 103. C - They may have higher exposure and fewer resources to prepare or recover.** Vulnerability often reflects poverty, weak infrastructure, insecure housing and limited access to services.
- 104. A - Risk results from hazards interacting with exposure and vulnerability.** Climate risk depends on the hazard, who or what is exposed, and how vulnerable they are.
- 105. C - Improved air quality and reduced health burden.** Reducing fossil fuel combustion can lower greenhouse gases and local air pollutants at the same time.

4. Biodiversity, Ecosystems and Forests

- 106. B - The variety of life at genetic, species and ecosystem levels.** Biodiversity includes variation within species, between species and among ecosystems.
- 107. C - A community of organisms interacting with each other and their physical environment.** Ecosystems include living organisms and non-living components such as water, soil, climate and nutrients.
- 108. B - Benefits people obtain from ecosystems.** Ecosystem services include food, water purification, pollination, climate regulation and cultural benefits.
- 109. A - Carbon storage by forests.** Regulating services control environmental conditions, such as climate, floods, pests and water quality.
- 110. D - Mangrove forest.** Mangroves store large amounts of carbon in vegetation and waterlogged sediments.
- 111. C - They store water, filter pollutants and support biodiversity.** Wetlands provide flood control, water purification, habitat and carbon storage.
- 112. C - Breaking large habitats into smaller isolated patches.** Fragmentation reduces connectivity and can harm species movement, breeding and survival.
- 113. D - They connect habitats and allow species movement.** Corridors can help maintain gene flow and allow species to respond to changing climate conditions.
- 114. B - A species with a disproportionately large effect on its ecosystem.** Keystone species strongly influence ecosystem structure and function relative to their abundance.
- 115. A - Ecosystem changes that spread through food-web levels.** When predators, herbivores or plants change, effects can cascade through food webs.
- 116. C - The ability of an ecosystem to absorb disturbance and recover.** Resilience describes how ecosystems maintain function or recover after stress.
- 117. A - Species may shift toward poles or higher elevations.** Species often track suitable temperature and moisture conditions by moving when possible.
- 118. C - Timing of biological events such as flowering, breeding or migration.** Climate change can alter phenology, creating mismatches between species and food sources.
- 119. C - Heat stress can cause bleaching and mortality.** Corals are sensitive to temperature; repeated heat stress can cause bleaching and death.
- 120. C - Arctic tundra.** Arctic tundra contains permafrost, which can thaw as temperatures rise.
- 121. C - Land degradation in drylands due to climate factors and human activities.** Desertification reduces land productivity and can be driven by drought, overgrazing and poor land management.
- 122. D - A non-native species that spreads and causes ecological or economic harm.** Invasive species can outcompete native species, alter habitats and disrupt ecosystems.
- 123. A - It supports reproduction of many flowering plants and food crops.** Pollinators such as bees, butterflies and bats help many plants produce fruits and seeds.
- 124. A - Protecting habitats and reducing pollution.** Habitat protection, restoration and pollution control are central to biodiversity conservation.
- 125. C - Assisting the recovery of degraded ecosystems.** Restoration aims to recover ecosystem structure, function and biodiversity.
- 126. D - They store carbon and influence rainfall and biodiversity.** Tropical forests are major carbon stores and help regulate water and regional climate.
- 127. C - Carbon storage, rainfall generation and regional climate regulation.** The Amazon stores carbon, recycles moisture and supports regional rainfall and climate stability.
- 128. B - Carbon stored in biomass is released, often as CO₂ and other pollutants.** Burning biomass releases carbon and damages ecosystems and air quality.
- 129. A - They can release carbon accumulated over thousands of years.** Peat stores dense carbon; fires can release large quantities of CO₂ and smoke.
- 130. D - A large ecological region defined by climate, vegetation and dominant life forms.** Examples include tropical rainforest, desert, tundra, grassland and savanna.
- 131. A - Ocean warming and acidification.** Coral reefs are threatened by warming, acidification, pollution, overfishing and coastal development.

- 132. C - Increase in concentration of certain pollutants at higher trophic levels.** Persistent pollutants can become more concentrated as they move up food chains.
- 133. D - Build-up of a substance in an organism over time.** Bioaccumulation occurs when uptake exceeds elimination, leading to increasing body burdens.
- 134. C - They store carbon, stabilize sediments and provide habitat.** Seagrasses are productive coastal ecosystems and important blue carbon sinks.
- 135. A - Extinction risk of species.** The IUCN Red List evaluates species conservation status and extinction risk.
- 136. C - A defined area managed for long-term conservation of nature.** Protected areas conserve ecosystems, species and ecological processes when effectively managed.
- 137. C - Community-based management and monitoring.** Local and community-based approaches can support protection when rights and incentives are aligned.
- 138. C - It weakens ecosystem services such as food, water purification and climate regulation.** Human well-being depends on biodiversity and ecosystem functions.
- 139. D - The role and position of a species in its environment.** A niche includes how a species uses resources, interacts with others and survives in conditions.
- 140. D - Restoring mangroves for carbon storage, habitat and coastal protection.** Mangrove restoration provides mitigation, adaptation and biodiversity benefits.

5. Pollution, Waste and Circular Economy

- 141. A - Presence of harmful substances in the air at levels that can affect health or environment.** Air pollution includes gases and particles such as PM2.5, ozone, nitrogen oxides and sulfur dioxide.
- 142. A - Fine particulate matter with diameter 2.5 micrometers or smaller.** PM2.5 particles are small enough to penetrate deep into the lungs and harm health.
- 143. D - Sulfur dioxide and nitrogen oxides.** SO₂ and NO_x can form sulfuric and nitric acids in the atmosphere, leading to acid rain.
- 144. B - Air pollution formed when sunlight reacts with NO_x and volatile organic compounds.** Sunlight-driven reactions produce ground-level ozone and other oxidants in smog.
- 145. D - Ozone formed near the surface from precursor gases.** Ground-level ozone is harmful to health and crops, unlike protective stratospheric ozone.
- 146. A - Contamination of water bodies by harmful substances or conditions.** Water pollution can involve pathogens, nutrients, chemicals, heavy metals, plastics and heat.
- 147. A - Nutrient enrichment causing algal blooms and oxygen depletion.** Excess nitrogen and phosphorus can trigger algal blooms that deplete dissolved oxygen when decomposed.
- 148. D - Nitrogen and phosphorus.** Nitrogen and phosphorus from fertilizers, sewage and runoff commonly cause eutrophication.
- 149. B - Biochemical oxygen demand from organic matter decomposition.** BOD indicates how much oxygen microbes need to break down organic matter in water.
- 150. D - Chemical oxygen demand of oxidizable substances in water.** COD measures the oxygen equivalent needed to chemically oxidize organic and inorganic substances.
- 151. C - Contamination of soil by harmful chemicals, waste or excess substances.** Soil pollution can involve pesticides, heavy metals, industrial waste, oil and plastics.
- 152. B - Lead.** Lead is a toxic heavy metal that can contaminate soil, water and air.
- 153. B - Build-up of pollutants in an organism over time.** Bioaccumulation occurs when organisms absorb substances faster than they can eliminate them.
- 154. D - Plastic particles generally smaller than 5 millimeters.** Microplastics come from breakdown of plastics or are manufactured as small particles.
- 155. D - Reducing single-use plastics and improving waste management.** Avoiding unnecessary plastics and managing waste properly reduces leakage to the environment.
- 156. C - Discarded electrical and electronic equipment.** E-waste includes obsolete phones, computers, appliances, cables and other electronics.

157. C - It can expose workers and communities to toxic metals and chemicals. Informal burning, acid leaching and unsafe dismantling can release hazardous substances.

158. C - A policy approach making producers responsible for products after use. EPR shifts responsibility for collection, recycling or disposal to producers and product systems.

159. B - Separating waste at the point of generation into categories. Source segregation improves recycling, composting and safe treatment.

160. A - Biodegradable organic waste. Food scraps, leaves and garden waste can be composted under suitable conditions.

161. B - Contaminated liquid that drains from waste deposits or landfills. Leachate can carry organic matter, nutrients, metals and chemicals from waste into soil and water.

162. A - Engineered waste disposal facility with liners, leachate and gas controls. Sanitary landfills are designed to reduce environmental pollution compared with open dumping.

163. B - It releases toxic pollutants, particles and greenhouse gases. Open burning can emit PM, dioxins, furans, black carbon and other harmful pollutants.

164. D - A system that keeps materials in use through reduce, reuse, repair, recycle and redesign. Circular economy reduces waste and resource extraction by designing for longer material use.

165. B - Prevention and reduction. Preventing waste at source is preferable to recycling, recovery or disposal.

166. C - Using a glass jar again for storage. Reuse extends a product's life without major reprocessing.

167. B - Processing waste materials into new materials or products. Recycling recovers material value but still requires energy and proper sorting.

168. A - Creating a higher-value product from discarded materials. Upcycling gives discarded materials new use with equal or higher value.

169. A - A method to evaluate environmental impacts across a product's life cycle. LCA considers extraction, production, use and end-of-life impacts.

170. C - Assessment from raw material extraction to disposal. Cradle-to-grave includes all life stages through final disposal.

171. B - Screening and primary treatment. Screens and primary settling remove large solids and settleable material.

172. C - Killing or inactivating pathogens before discharge or reuse. Disinfection reduces disease-causing organisms using chlorine, UV or other methods.

173. D - A toxic organic chemical that resists degradation and can bioaccumulate. POPs persist in the environment, travel long distances and accumulate in food webs.

174. D - Labeling, segregation, secure storage and authorized treatment. Hazardous waste requires identification, separation, safe storage, transport and treatment.

175. B - Repairing products instead of replacing them quickly. Repair extends product life and avoids emissions from manufacturing and disposal.

6. Water, Agriculture and Food Systems

176. B - Movement of water through evaporation, condensation, precipitation, runoff and infiltration. The water cycle describes continuous movement of water through atmosphere, land, oceans and living systems.

177. D - Water stored underground in soil and rock spaces. Groundwater occurs in pores and fractures below the surface, often in aquifers.

178. B - A geological formation that stores and transmits groundwater. Aquifers can supply wells and springs when they contain usable water.

179. A - Managing land, water and ecosystems within a drainage basin. Watershed management considers how land use affects runoff, erosion, water quality and water availability.

180. C - Drip irrigation. Drip irrigation delivers water close to plant roots and can reduce losses.

181. C - Collecting and storing rainwater for later use or recharge. Rainwater harvesting can support water supply and groundwater recharge where designed well.

182. A - Removal of topsoil by water, wind or human activity. Soil erosion removes fertile topsoil and can reduce productivity and water quality.

183. A - Maintaining ground cover and contour farming. Vegetation cover and contour practices slow runoff and hold soil in place.

184. A - Agriculture that meets food needs while protecting soil, water, biodiversity and future productivity. Sustainable agriculture balances productivity, environmental protection and social viability.

185. B - Integrating trees with crops or livestock systems. Agroforestry can improve soil, biodiversity, shade, carbon storage and livelihood diversity.

186. D - Combining biological, cultural, mechanical and careful chemical methods to manage pests. IPM reduces reliance on pesticides by using multiple strategies based on monitoring.

187. B - It can cause nutrient runoff and nitrous oxide emissions. Excess nitrogen and phosphorus can pollute water, and nitrogen fertilizers can emit N₂O.

188. B - Rice paddies under flooded conditions. Anaerobic conditions in flooded rice fields can produce methane.

189. B - Ruminants produce methane during digestion. Ruminant animals such as cattle release methane through enteric fermentation.

190. D - It wastes production emissions and can produce methane in landfills. Food waste represents wasted energy, land and inputs, and decomposing organics can release methane.

191. D - Total freshwater used directly and indirectly to produce goods or services. Water footprint accounts for water consumed and polluted across supply chains.

192. A - Water embedded in the production of traded goods and food. Virtual water describes hidden water use in products, such as crops or textiles.

193. C - Accumulation of salts in soil that can reduce plant growth. Poor irrigation and drainage in dry regions can lead to salt build-up in soils.

194. C - Reducing food waste and improving storage. Reducing losses saves resources and emissions while improving food availability.

195. A - They trap sediments and help remove nutrients and pollutants. Wetlands filter water through vegetation, soils and microbial processes.

196. B - A prolonged period of unusually low water availability. Drought can be meteorological, agricultural, hydrological or socio-economic depending on impacts.

197. C - Low-lying land near a river that can flood during high flows. Floodplains store floodwater and support fertile soils and ecosystems when managed wisely.

198. D - It can increase exposure to flood damage and reduce natural flood storage. Development on floodplains can increase flood losses and disrupt natural water flow.

199. B - Removing salts from seawater or brackish water. Desalination can supply water but may be energy-intensive and produce brine waste.

200. A - Adding compost and maintaining cover crops. Organic inputs, reduced disturbance and cover crops can increase soil organic carbon over time.

201. C - Minimum soil disturbance, permanent soil cover and crop diversification. Conservation agriculture aims to protect soil structure and moisture and improve sustainability.

202. B - Ocean warming and acidification can change fish distribution and productivity. Marine species can shift ranges and fisheries may face productivity changes under warming oceans.

203. C - Runoff carrying fertilizers and pesticides. Agricultural runoff can carry nutrients, pesticides, sediments and pathogens into water bodies.

204. B - A diet with lower environmental impacts and adequate nutrition. Sustainable diets consider nutrition, culture, affordability and environmental impacts.

205. B - Healthy soil stores water, supports roots and can store carbon. Healthy soils improve water retention, fertility, carbon storage and crop resilience.

7. Renewable Energy and Sustainable Living

206. A - Solar energy. Solar energy is replenished naturally and has low operational emissions.

207. B - By converting sunlight directly into electricity. Photovoltaic cells convert light into electricity through the photovoltaic effect.

208. C - Electricity generated from the kinetic energy of moving air. Wind turbines convert wind movement into mechanical and electrical energy.

- 209. D - They can be variable and need storage or grid management.** Solar and wind output changes with weather and time, so grids need flexibility and storage.
- 210. D - Balancing supply and demand when renewable output varies.** Batteries, pumped storage and other systems help store electricity for later use.
- 211. A - Electricity generated from moving or falling water.** Hydropower uses water flow to turn turbines.
- 212. D - Ecosystem disruption and displacement.** Large dams can alter river flow, sediments, fish migration and communities.
- 213. D - Energy from heat within the Earth.** Geothermal systems use heat from Earth's interior for electricity or heating.
- 214. A - Using goods and services in ways that reduce environmental impact and resource depletion.** Sustainable consumption emphasizes durability, repair, efficiency and responsible choices.
- 215. C - Public transport when well used.** Public transport can move many people with lower emissions per passenger than individual car trips.
- 216. C - Changing from higher-emission to lower-emission transport modes.** Modal shift can include moving from private cars to public transport, cycling or walking.
- 217. C - Insulation and passive cooling design.** Insulation, shading and passive design reduce heating and cooling energy demand.
- 218. B - A device that moves heat efficiently for heating or cooling.** Heat pumps transfer heat rather than generating it directly, making them efficient in suitable settings.
- 219. B - A roof partially or fully covered with vegetation and growing medium.** Green roofs can reduce heat, manage stormwater and support urban biodiversity.
- 220. A - Adjusting electricity use in response to grid conditions or prices.** Demand response helps balance supply and demand, especially with variable renewable energy.
- 221. D - An electricity network using digital monitoring and control for efficiency and flexibility.** Smart grids help integrate renewables, storage, demand response and reliability tools.
- 222. C - Making misleading environmental claims about a product or company.** Greenwashing creates a false impression of environmental responsibility.
- 223. A - They can vary in quality and should not replace direct emission reductions.** Offsets need additionality, permanence and verification, and direct reductions should come first.
- 224. A - Designing products to reduce environmental impacts across their life cycle.** Eco-design considers material choice, energy use, durability, repair and end-of-life recovery.
- 225. B - Choosing durable and repairable products.** Durable, repairable products extend material life and reduce waste.
- 226. A - Purchasing goods and services with environmental and social criteria.** Sustainable procurement uses buying power to reduce impacts and improve supply chains.
- 227. D - Reducing energy use, waste and high-emission consumption where possible.** Low-carbon living focuses on reducing emissions from home energy, transport, food and consumption.
- 228. A - Turning off unused appliances and using efficient devices.** Energy-saving habits and efficient devices reduce electricity demand and emissions.
- 229. B - They extend product life and reduce waste.** Repair services keep products in use longer and reduce demand for new production.
- 230. D - It considers material extraction, manufacturing, use and end-of-life impacts.** Renewable technologies have low operational emissions but still require materials, manufacturing and responsible end-of-life management.

8. Environmental Governance, Methods and India Context

- 231. D - An international climate agreement to limit global warming and strengthen climate action.** The Paris Agreement aims to limit warming and requires countries to submit climate action plans called NDCs.
- 232. D - Country climate action plans under the Paris Agreement.** NDCs describe national efforts to reduce emissions and adapt to climate change.
- 233. A - A process to evaluate likely environmental effects before a project is approved.** EIA helps identify, predict and manage environmental impacts of proposed projects.
- 234. A - Lack of full certainty should not delay action when serious environmental harm is possible.** The precautionary principle supports preventive action under uncertainty when risks are serious.

- 235. A - Those who cause pollution should bear the costs of managing it.** This principle places responsibility for pollution control and damage costs on polluters.
- 236. C - Putting a price on greenhouse gas emissions through taxes or trading systems.** Carbon pricing creates an economic signal to reduce emissions.
- 237. B - A market-based system where emission allowances can be traded under a cap.** Cap-and-trade systems limit total emissions and allow trading of emission permits.
- 238. A - Measurement, reporting and verification.** MRV systems track emissions, actions and progress credibly.
- 239. D - A systematic accounting of emissions and removals by sources and sinks.** GHG inventories estimate emissions by sectors such as energy, industry, agriculture, land use and waste.
- 240. B - Regular measurement of environmental conditions such as air, water, soil or biodiversity.** Monitoring provides data to detect trends, enforce standards and design interventions.
- 241. C - A simplified scale that communicates air pollution levels and health concern.** AQI translates pollutant measurements into categories useful for public health communication.
- 242. C - Meeting present needs without compromising future generations' ability to meet theirs.** Sustainability integrates environmental protection, social well-being and economic viability.
- 243. B - A set of global goals adopted by the United Nations for sustainable development.** The SDGs cover poverty, health, education, climate, biodiversity, water, energy and more.
- 244. B - SDG 13.** SDG 13 is Climate Action, though climate links with many SDGs.
- 245. D - A measure of human demand on biologically productive land and water.** Ecological footprint compares resource demand with Earth's capacity to regenerate resources and absorb waste.
- 246. D - The maximum population or activity level an environment can support sustainably.** Carrying capacity depends on resources, technology, consumption and ecological limits.
- 247. D - Learning that builds awareness, knowledge and action for environmental protection.** Environmental education helps people understand systems, impacts and solutions.
- 248. D - Public participation in scientific data collection or analysis.** Citizen science can support biodiversity monitoring, pollution mapping and climate observations.
- 249. D - Central Pollution Control Board.** The Central Pollution Control Board supports pollution monitoring, standards and control in India.
- 250. C - Ward-level waste segregation, tree protection and flood-risk mapping.** Local actions on waste, water, green cover and risk mapping make climate governance practical at city level.

References and Further Reading

- Intergovernmental Panel on Climate Change (IPCC). Sixth Assessment Report and Synthesis Report.
- NASA Global Climate Change: Evidence, causes and effects of climate change.
- NOAA Climate.gov and NOAA climate education resources.
- United Nations Climate Action resources on causes, effects and solutions.
- UNEP resources on climate action, pollution, forests and waste management.
- World Health Organization resources on climate change and health.
- UNFCCC resources on the Paris Agreement and Nationally Determined Contributions.
- Convention on Biological Diversity and IPBES resources on biodiversity and ecosystem services.
- Central Pollution Control Board resources for air and pollution management in India.