

Multiple Choice Questions (MCQs)

What are the two main components of an ecosystem?

- a) Biotic and Abiotic components

Which of the following is an abiotic component in an ecosystem?

- b) Soil

Energy flows in an ecosystem start from:

- c) Producers (plants)

Which of the following is an example of a terrestrial ecosystem?

- c) Deserts

Deforestation leads to all of the following except:

- d) Reduction in global temperatures

Which type of pollution is caused by the contamination of water bodies with harmful substances?

- c) Water pollution

Which human activity has contributed the most to climate change?

- c) Burning of fossil fuels

Biodiversity refers to:

- b) The variety of life forms on Earth, including species diversity and ecosystem diversity

Synthesis Questions

1. Explain the difference between biotic and abiotic components in an ecosystem.

Answer: Biotic components in an ecosystem are the living elements, such as plants, animals, bacteria, and fungi, whereas abiotic components include non-living elements like water, soil, air, and light. Both are essential for maintaining ecological balance, with biotics depending on abiotics for resources and habitat.

2. Describe the process of energy flow in an ecosystem.

Answer: Energy in an ecosystem begins with producers (such as plants), which capture solar energy to produce their food through photosynthesis. This energy is then transferred to consumers (herbivores, carnivores) and finally to decomposers, who recycle organic matter. This flow follows the food chain but decreases at each trophic level.

3. What are the major environmental challenges caused by human activities, and how do they impact ecosystems?

Answer: Human activities, such as deforestation, fossil fuel use, urbanization, and intensive agriculture, have led to major challenges, including climate change, biodiversity loss, pollution, and soil degradation. These activities alter natural habitats, disrupt ecological cycles, and endanger ecosystem health.

4. How does deforestation contribute to climate change?

Answer: Deforestation releases carbon stored in trees as CO₂, increasing greenhouse gases in the

atmosphere. It also reduces the ability of ecosystems to absorb CO₂, exacerbating global warming. Additionally, tree loss reduces biodiversity and destabilizes local hydrological cycles.

5. Discuss the role of biodiversity in maintaining ecosystem stability.

Answer: Biodiversity promotes ecosystem resilience against disturbances, as a greater variety of species allows better balance and adaptation to environmental changes. It supports ecological functions (such as pollination and nutrient cycling) and contributes to the health of the entire ecosystem.