

MCQ Answers:

- 1. What is the environment?**
b) The sum of all external conditions affecting the life and development of organisms.
- 2. What are the two main components of the environment?**
c) Biological and physical environment
- 3. Which component is part of the natural environment?**
c) Living organisms
- 4. Which element of the natural environment is vital for respiration?**
b) Air
- 5. What is a characteristic of the artificial environment?**
b) It is a structure modified by humans to support human activities.

Synthesis Questions with Answers:

- 1. Explain the difference between the natural environment and the artificial environment. Provide examples to illustrate your answer.**
The natural environment consists of elements that occur naturally without human intervention, such as forests, rivers, oceans, and mountains. For example, a rainforest is part of the natural environment as it develops without direct human influence. On the other hand, the artificial environment is created or significantly modified by humans to support their needs, such as cities, roads, and buildings. An example of the artificial environment is a city with roads, factories, and housing infrastructure, which alters the natural landscape.
- 2. Why is the environment essential for the survival of humans and other living organisms? Describe the role of air, water, soil, and living organisms in this balance.**
The environment provides essential resources needed for life. Air is crucial for respiration in humans, animals, and plants. Water is necessary for hydration, agriculture, and maintaining ecosystems. Soil supports plant growth, which in turn sustains food chains and provides oxygen. Living organisms, including plants, animals, and microorganisms, interact in ecosystems, creating a balance that supports life. For instance, plants produce oxygen while animals exhale carbon dioxide, ensuring a balanced exchange of gases in the atmosphere.
- 3. Discuss the impacts that the artificial environment can have on the natural environment. Include concrete examples of modifications caused by human activities.**
The artificial environment often leads to the degradation of the natural environment through

activities such as deforestation, urbanization, and industrialization. For example, constructing roads and buildings destroys forests and animal habitats, leading to loss of biodiversity. Factories and industrial zones emit pollutants into the air and water, causing environmental degradation and health hazards. Overuse of chemical fertilizers in agriculture can also lead to soil depletion and water contamination.

4. **How do biotic and abiotic components interact in an ecosystem to maintain ecological balance?**

Biotic components, such as plants, animals, and microorganisms, interact with abiotic components like air, water, sunlight, and soil to maintain an ecosystem's balance. For example, plants (biotic) rely on sunlight, water, and nutrients from the soil (abiotic) for photosynthesis. Animals depend on plants for food, and in return, their waste products help fertilize the soil, promoting plant growth. This cycle of energy flow and nutrient recycling between living organisms and their physical environment helps sustain ecological balance.