



UPSC CURRENT AFFAIRS MCQS 28-01-2024

Q1:

With reference to natural habitat ecological niche, consider the following statements:

- 1. It is the area in which organisms are adapted to live and develop.**
- 2. There is no predator-prey relationship in this.**
- 3. It involves only physical conditions.**

How many of the above statements are correct?

A: Only one

B: Only two

C: All three

D: None

Answer: A

Explanation:

The natural habitat of a plant or an animal is the area in which an organism or a population of organisms is adapted to live and develop. Natural habitat is characterized by the biotic and abiotic factors of the area such as climate, vegetation, soil, water, etc. Many species may have natural habitats in one area. Hence, statement 1 is correct.

In this niche, many species live in the same natural habitat without competing with each other and without destroying each other. Predator-prey relationships occur in natural habitats but rarely lead to the complete extinction of a species. Hence, statement 2 is incorrect.

In a stable ecosystem each species finds its own ecological niche and thus acquires the ability to co-exist with other species. The ecological niche of an organism includes all the physical, chemical and biological conditions necessary for it to survive in its natural habitat. The niche also includes the organism's feeding habits, nesting methods and regeneration, etc. Hence, statement 3 is incorrect.



Q2:

Consider the following:

- 1. Lakshadweep**
- 2. Gulf of Mannar**
- 3. Gulf of Kutch**
- 4. Sundarban**

In which of the above coral reefs are not found?

- A:** Only one
B: Only two
C: Only three
D: All four

Answer: A

Explanation:

According to the Indian Institute of Marine Science, there are four major coral reef areas in India – Andaman and Nicobar Islands, Lakshadweep, Gulf of Mannar and Gulf of Kutch. Hence, option (a) is the correct answer.

Q3:

With reference to the carbon cycle, consider the following statements:

- 1. Most of the carbon on Earth is stored in rocks.**
- 2. Producers consume oxygen in the photosynthesis process.**

Which of the statements given above is/are correct?

- A:** 1 only
B: 2 only
C: Both 1 and 2
D: Neither 1 nor 2

Answer: A

Explanation:

Carbon is essential for cells. Most of the carbon on Earth is stored in rocks. The remaining carbon is stored in the oceans, atmosphere, plants, soil and fossil fuels. Hence, statement 1 is correct.

During photosynthesis, producers take in CO₂ and release oxygen into the atmosphere. In the process of respiration, humans and animals take in oxygen and release CO₂ which goes back to the plant. Decomposers break down organic matter and in this process CO₂ is released into the atmosphere. When a volcano erupts or there is a forest fire, more CO₂ enters the atmosphere. Hence, statement 2 is incorrect.

Q4:

Consider the following statements:

- 1. Nitrogen is a gas directly absorbed by living organisms.**
- 2. The complex nitrogen cycle converts nitrogen into ammonia.**

Which of the above statements is/are not correct?

- A:** Only 1
B: Only 2
C: Both 1 and 2
D: Neither 1 nor 2

Answer: A

Explanation:

Cells need nitrogen to make their proteins and genes. Most of the nitrogen on Earth is present in the atmosphere as gas. Organisms need nitrogen but cannot absorb it directly. Hence statement 1 is not correct.

The complex nitrogen cycle converts nitrogen into ammonia which can be absorbed by organisms. This process is called nitrogen fixation which is carried out by bacteria. These bacteria are found in the roots of leguminous plants; like they live in beans etc. Hence statement 2 is correct.

Q5:

Consider the following pairs:

1. Alpha	Compares diversity in ecosystems.
2. Beta	Refers to diversity within a particular area or ecosystem.
3. Gamma	A measure of overall diversity for different ecosystems within a region.

How many of the above pairs are correctly matched?

A: Only one pair

B: Only two pairs

C: All three pairs

D: None

Answer: A

Explanation:

Ecosystem diversity refers to the variety of ecosystems found in a region or landscape. India as a whole has immense ecological diversity. Yet if we consider only the Thar Desert region you will find very little ecological diversity. There are three spatial scales for measuring biodiversity – alpha, beta and gamma diversity.

Alpha diversity refers to the diversity within a particular region or ecosystem and is usually expressed by the number of species in that ecosystem. Hence, pair 1 is not correctly matched.

Beta diversity compares diversity across ecosystems. It counts the total number of unique species found in the compared ecosystems. Hence, pair 2 is not correctly matched.

Gamma diversity is a measure of overall diversity for different ecosystems within a region. It counts the total number of unique species found in the entire region. Hence, pair 3 is correctly matched.



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