

INSTRUCTIONS

1. This Test Booklet contains 50 items (Questions). Each item is printed in English. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response with you consider the best. In any case, choose **ONLY ONE** response for each item.
2. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See direction in the answers sheet.
3. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the answer sheet. **For every incorrect response 1/3rd of the allotted marks will be deducted.**

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1. With reference to the primary productivity of an ecosystem, consider the following statements:

1. Gross primary productivity is the rate of formation of biomass or organic matter during photosynthesis.
2. Net primary productivity is the rate of formation of new organic matter by consumers.

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

2. Mangrove expansion is threatening Kadalundi's migratory shorebirds. In this context, Kadalundi mudflat ecosystem is in

- (a) Tamil nadu
- (b) Kerala
- (c) Karnataka
- (d) Andhra Pradesh

3. With reference to the processes under nitrogen cycle, consider the following pairs:

Process	Function
1. Nitrification:	Conversion of nitrates or nitrites into gaseous nitrogen
2. Assimilation:	Conversion of gaseous nitrogen into ammonia
3. Ammonification:	Conversion of nitrogenous waste products and dead organisms into inorganic ammonia
4. Denitrification:	Conversion of ammonia into nitrates or nitrites

How many of the above pairs are correctly matched?

- (a) Only two
- (b) Only three
- (c) All four
- (d) None

4. Arrange the following organisms in the correct sequential order of a food chain, starting from the primary producer to the top predator.

1. Desert Hare
2. Desert willow
3. Coyote
4. Falcon
5. Snake

Select the correct answer using the code given below.

- (a) 1-2-3-4-5
- (b) 2-1-5-4-3
- (c) 3-2-1-5-4
- (d) 1-2-5-4-3

5. Consider the following statements regarding the differences between acclimatization and adaptation:

1. Adaptation is a temporary adjustment of an organism to a changing environment while acclimatization is a long-term permanent adjustment of a group of organisms to a changing environment.
2. Increase in the count of red blood cells of humans at high altitude is an example of adaptation.

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

6. Consider the following pairs:

<i>Ramsar Sites</i>	<i>State</i>
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- | | |
|------------------------------|-------------|
| 1. Tawa Reservoir : | Maharashtra |
| 2. Nanjarayan Lake : | Karnataka |
| 3. Kazhuveli Bird Sanctuary: | Tamil Nadu |

How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

7. Consider the following:

1. Dominance of phtoplankton and algae
2. Damage to the coral reefs
3. Sea bottom hypoxia

How many of the above are the impacts of eutrophication?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

8. Which of the following about an ecosystem is/are correct?

1. Biotic components interact with abiotic factors of the ecosystem but they do not interact among themselves.
2. Organisms present in the ecosystem interact with surrounding environment and exchange mass as well as energy with it.
3. Decomposers are not a part of an ecosystem.

Select the correct answer using the codes given below.

- (a) 2 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

9. Which of the following statements is *not* correct regarding aquatic ecosystem?

- (a) Respiration activity takes place in the aphotic zone.
- (b) The littoral zone is the warmest zone of a lake.
- (c) Nektons are small organisms which liveat the air-water interface.
- (d) The limnetic zone is dominated by both phytoplankton and zooplankton.

10. Consider the following statements about ecological succession:

1. Allogenic succession is driven by the biotic components of an ecosystem whereas autogenic succession is driven by the abiotic components of the ecosystem.
2. Primary succession is the succession that starts on a previously destructed habitat, whereas secondary succession is the succession that starts in lifeless areas.

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

11. Which of the following statements best describes the sympatric speciation?

- (a) It occurs when new species are created by the people through lab experiments.
- (b) It occurs when a species separates into two separate groups which are isolated from one another due to the geographical barrier.
- (c) It occurs when small groups of individuals break off from the larger group and form a new species.
- (d) It occurs when there are no physical barriers preventing any members of a species from mating with another.

12. Consider the following statements regarding Energy flow in an Ecosystem:

- 1. The transfer of energy or food from a producer through a series of organisms is known as the food chain.
- 2. The 10% law given by Linde Mann states that during the transfer of energy from one trophic level to another about 10% of energy is lost in respiration.

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

13. Consider the following statements with reference to the ecological succession:

- 1. The primary succession occurs over a barren area which usually lacks topsoil and organic matter.

2. The recolonisation of an area damaged by fire is an example of primary succession.

3. Each transitional community that is formed and replaced during succession is called a seral community.

Which of the statements given above is/are correct?

- (a) 2 and 3 only
- (b) 1 only
- (c) 2 only
- (d) 1 and 3 only

14. Consider the following pairs:

<i>Ramsar Site</i>	<i>State</i>
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- | | |
|--------------------------------------|------------|
| 1. Magadi Kere Conservation Reserve: | Karnataka |
| 2. Aghanashini Estuary: | Telangana |
| 3. Longwood Shola Reserve Forest: | Tamil Nadu |
| 4. Karaivetti Bird Sanctuary: | Kerala |

How many of the above pairs are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

15. With reference to Peatlands, consider the following statements:

- 1. They are the largest natural terrestrial carbon store.
- 2. They are predominantly concentrated in temperate forests.
- 3. The Brazzaville Declaration aims to promote better management of peatlands in the Congo Basin.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1, 2 and 3
- (c) 2 only
- (d) 1 and 3 only

16. With reference to different zones of an aquatic ecosystem, consider the following statements:

- 1. The limnetic zone is well-lit and is dominated by plankton.
- 2. Profundal zone is the deep-water part of the lake or pond.

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

17. Consider the following statements:

- 1. The total net primary productivity of oceans is greater than the productivity of the land surface.
- 2. Secondary productivity is derived by subtracting respiration losses from the primary productivity.

Which of the statements given above is/are *not* correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

18. With reference to food chains, consider the following statements:

- 1. All food chains begin with autotrophs.
- 2. In an aquatic ecosystem, Detritus Food Chain (DFC) is the major conduit for energy flow as Grazing Food Chain (GFC) is totally absent.
- 3. Saprotrophs form an important part of Detritus Food Chains.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1 and 2 only

19. Consider the following:

- 1. Nitrification
- 2. Assimilation
- 3. Denitrification
- 4. Nitrogen Fixation

How many of the above mentioned are part of nitrogen cycle?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

20. Consider the following:

- 1. Inefficient grazing strategies
- 2. Low turnover rate of phytoplankton
- 3. Long food chains

How many of the above are reasons for the Inverted Pyramid Of Biomass in Oceans?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

21. With reference to ecological pyramids, consider the following statements:

1. The pyramid of biomass in the sea is generally inverted.
2. Pyramid of energy can never be inverted.
3. Saprophytes are not represented in ecological pyramids.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

22. Consider the following statements:

Statement-I: Ecological succession is defined as the process in which one generation of a species replaces another without allowing other species to grow.

Statement-II: Primary succession takes place in areas that are newly exposed and essentially lifeless.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

23. Speciation is how a new kind of plant or animal species is created. In this context, which of the following statements best describes allopatric speciation?

- (a) It occurs when a species separates into two separate groups which are isolated from one another.
- (b) It occurs when there are no physical barriers preventing any members of a species from mating with another.
- (c) It occurs when small groups of individuals break off from the larger group and continue to remain in close proximity..
- (d) It is the creation of new species by humans in a laboratory through genetic manipulation.

24. With reference to ecological succession, consider the following statements:

1. Ecological succession is defined as the process in which one generation of a species replaces another without allowing other species to grow.
2. Primary succession takes place in areas that are newly exposed and essentially lifeless.

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

25. Which of the following benefits are provided by wetlands?

1. Storehouses of plant genetic material.
2. Groundwater recharge
3. Carbon sequestration

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

26. With reference to the measurement of biodiversity of a region, which of the following correctly depicts the diversity of species between two habitats or regions?

- (a) Alpha Diversity
- (b) Beta diversity
- (c) Gamma Diversity
- (d) Delta Diversity

27. Multiple Invasive Alien Species (IAS) have become a threat to ecosystems worldwide. In this context, which of the following are the common characteristics of IAS?

- 1. Rapid reproduction and growth
- 2. High dispersal ability
- 3. Phenotypic plasticity

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

28. How many of the following types of adaptations are shown by mangroves?

- 1. Viviparity
- 2. Cutinized epidermis
- 3. Pneumatophores

4. Knee roots

Select the correct answer using the code given below.

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

29. Which of the following are known as sedimentary biogeochemical cycles?

- 1. Carbon cycle
- 2. Nitrogen cycle
- 3. Phosphorous cycle
- 4. Sulphur cycle

Select the correct answer using the code given below.

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

30. Consider the following scales of measuring species diversity:

- 1. Alpha diversity refers to the diversity within a particular area or ecosystem and is usually expressed in number of species.
- 2. Beta diversity is a comparison of diversity between the ecosystems and different communities, usually measured as change in amount of species.

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

31. Consider the following statements regarding peatlands:

1. They are one of the largest natural terrestrial carbon stores.
2. Peatland acts as a natural filter for removing water pollution.
3. A bog is a type of peatland.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 3 only
- (c) 2 only
- (d) 1, 2 and 3

32. A gradual change in which of the abiotic factors will lead to the formation of an ecocline?

1. Temperature
2. Salinity
3. Altitude

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

33. Which of the following areas in India are included in the World Biodiversity Hotspots?

1. Himalayas
2. Western Ghat
3. Eastern Ghat
4. Northeastern India
5. Nicobar Group of Island

Select the correct answer using the code given below.

- (a) 1, 2, 4 and 5 only
- (b) 1, 2, and 3 only
- (c) 3, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

34. Also known as Kanwar Jheel, this wetland lies in the Indo-Gangetic plains. It is an important stopover along the Central Asian Flyway. It is home to critically endangered species like the red-headed vulture and sociable lapwing. It was recently designated as a protected wetland under the Ramsar Convention.

Which of the following wetlands is being described in the above passage?

- (a) Kanjli Lake
- (b) Asan Conservation Reserve
- (c) Kabartal Wetland
- (d) Samaspur Bird Sanctuary

35. With reference to the phosphorous cycle, consider the following statements:

1. Rocks are the natural reservoir of phosphorous.
2. Phosphorous is primarily exchanged between organisms and the environment through respiration.

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

36. Consider the following statements:

1. National Biodiversity Authority (NBA) is a statutory body formed under the Biological Diversity (BD) Act, 2002 to regulate use of India's biological resources.
2. It would be required to obtain the approval of the NBA before seeking any IPR based on biological material obtained from India.
3. Human genetic material is excluded from the definition of biological resources under the BD Act, 2002.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

37. Which of the following are the primary reasons for coral bleaching?

1. Marine heatwaves
2. Shifting ocean currents
3. Ocean acidification
4. Sedimentation

Select the correct answer using the code given below.

- (a) 1, 2, and 3 only
- (b) 2 and 3 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

38. In the context of ecological niches, the term "Fundamental niche" refers to,

- (a) The entire range of environmental conditions in which a species can potentially exist.

(b) The specific conditions where a species is most commonly found.

(c) The niche that two species share when they coexist in a habitat.

(d) The idealized niche for a species, without considering competition.

39. Consider the following processes

1. Sedimentation
2. Decomposition
3. Weathering of rocks

How many of the above processes add carbon dioxide to carbon cycle?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

40. Which of the following classes of plants is/are a feature of tropical rainforests?

1. Saprophytes
2. Xerophytes
3. Epiphytes

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

41. Consider the following statements regarding the concept of Ecological pyramids:

1. It does not consider the same species belonging to two or more trophic levels.

2. It is based on simple food chains that hardly exist.
3. Saprophytes are placed above tertiary consumers in the Ecosystem.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

42. This aquatic ecosystem is characterized by its low salt content and is often found in ponds, lakes, bogs, and swamps. It experiences diurnal and seasonal variations in temperature and has distinct zones, including the limnetic zone with shallow water and the profundal zone at the bottom.

Which of the following aquatic ecosystems is best described by the above paragraph?

- (a) Coral reef
- (b) Freshwater ecosystem
- (c) Mangrove swamp
- (d) Marine ecosystem

43. With reference to the loss of biodiversity in a region, consider the following:

- 1. Decline in plant production
- 2. Lowered resistance to environmental perturbations such as drought
- 3. Increased variability in the disease cycle

How many of the above is/are potential consequences of biodiversity loss?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

44. Consider the following factors:

- 1. The introduction of a new species to the ecosystem
- 2. Changes in environmental conditions, such as temperature or precipitation
- 3. The removal of a key species from the ecosystem

How many of the above can significantly impact the stability of a food chain?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

45. In the context of ecology, which of the following statements is **not** correct?

- (a) No two species in a habitat can have the same ecological niche.
- (b) An ecotype is a population that is adapted to local environmental conditions.
- (c) Ecocline is the zone of abrupt change in altitude within an ecosystem.
- (d) Population is a community of interbreeding organisms occupying a defined area during a specific time.

46. To cope with extreme conditions, desert plants have adopted various mechanisms to minimize water loss. In this context, which of the following adaptations can be observed in desert plants?

- 1. Arrangement of stomata in deep pits
- 2. Modification of leaves into spines
- 3. Photosynthesis by stems

Select the correct answer using the code given below.

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

47. Consider the following statements with regard to Biological Oxygen Demand (BOD):

1. It depicts the amount of organic pollution present in an aquatic ecosystem.
2. High BOD level means the amount of dissolved oxygen available for marine organisms is low.

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

48. Which among the following are categorized under autotrophs?

1. Phototrophs
2. Chemotrophs
3. Parasites
4. Saprophytes

Select the correct answer using the code given below.

- (a) 1 only
- (b) 1 and 2 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

49. Consider the following statements with reference to the ecosystem productivity:

1. Net primary productivity of an ecosystem is always less than its gross primary productivity.

2. Primary productivity depends on the photosynthetic capacity of plants.

Which of the statements given above is/are correct?

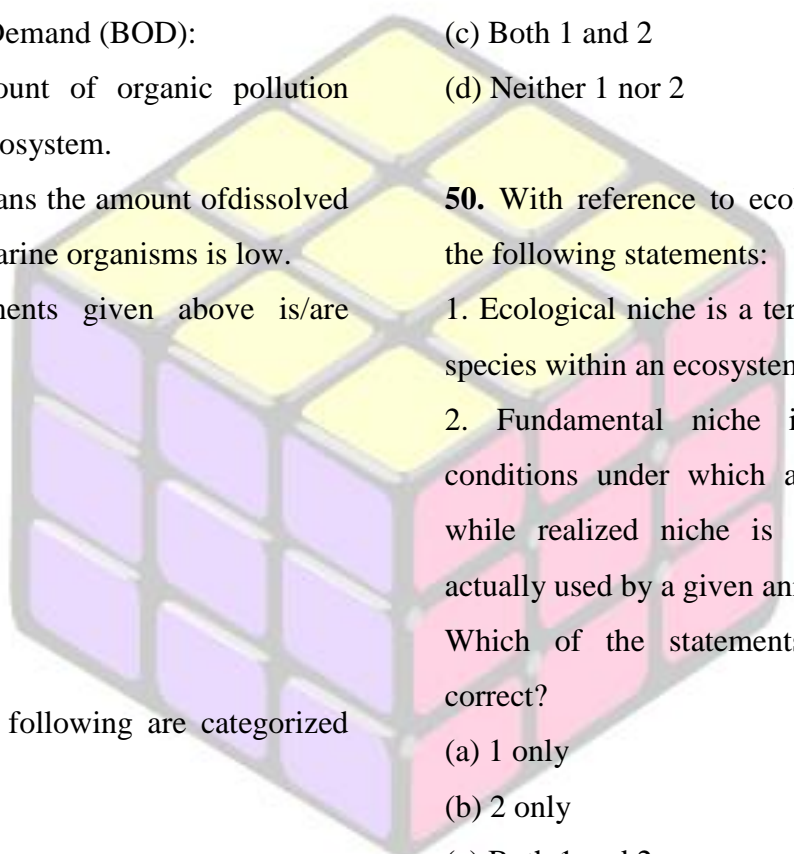
- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

50. With reference to ecological niche, consider the following statements:

1. Ecological niche is a term for the position of a species within an ecosystem.
2. Fundamental niche is the entire set of conditions under which an animal can survive while realized niche is the set of conditions actually used by a given animal.

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



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