

KATHMANDU UNIVERSITY  
End Semester Examination  
September 2024

Marks Scored:

Level : B.Sc.

Year : I

Course : ENV5 102

Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 17 SEP 2024

SECTION "A"

[20 Q. × 0.5 = 10 marks]

*Choose and mark [X] the most appropriate answer.*

1. One organism is benefited and other organism is unharmed from the association  
 Mutualism       Parasitism       Commensalism       None
2. The biome where fauna is generally arboreal (tree dwelling).  
 Tundra       Desert  
 Wetlands       Tropical rainforest
3. Primary abiotic factor  
 Solar energy       Crust       Volcano       Plants
4. Density independent factor is  
 Earthquake       Stress       Predation       Disease
5. Replacement of populations in habitat as it moves toward a stable state  
 Succession       Climax community  
 Secondary succession       Steady state
6. According to a study of 2008, fungicides use in Nepal is  
 50 %       57 %       60 %       76 %
7. Which one is an example of organophosphates  
 DDT       Lindane       Malathion       TDT
8. The highest level of organization  
 Atmosphere       Pedosphere       Biosphere       Thermosphere
9. Pesticide that controls nematodes  
 Insecticides       Acaricides  
 Nematicides       Rodenticides
10. Nitrous oxide is about....times more effective than CO<sub>2</sub> at trapping heat in the atmosphere  
 20       200       25       300
11. Those who are dependent on other organisms for their food  
 Nutritional relationship       Heterotrophs  
 Autotrophs       None

12. The nitrogen based chemical fertilizer is formed mainly by  
 Combustion  Biological nitrogen fixation  
 Natural process  Haber-Bosch process
13. Break down organic wastes and dead organisms to simpler substances  
 Producer  Secondary consumer  
 Primary consumer  Decomposers
14. Tropic levels in a food chain  
 Producers  Snakes  Rats  All of them
15. Those animals that feed on other animals that they have not killed  
 Scavengers  Predators  Saprophytes  herbivores
16. Index of similarity is calculated by....(where C is common species, A is number of species present in site 1, and B is number of species present in site 2.  
  $2C/A+B$    $A/2C+B$    $2B/A+C$    $C/A+B$
17. A variety of physical, biological and chemical methods to control insect pests  
 IPM  DDT  CFCs  PCBs
18. While calculating basal area, "dbh" refers to  
 Diameter at breast height  Depth at breast height  
 Diameter at broad height  Deep breadth height
19. Number of individuals or measurement of population per unit of area  
 Refraction  Size  Dispersion  Density
20. Number of individuals per quadrat of occurrence is  
 Abundance  Occurrence  Density  Frequency

#### SECTION "B"

[20 Q. × 0.5 = 10 marks]

21. The population remains relatively constant over a number of years is \_\_\_\_\_.
22. A place where a plant or animal can get the food, water, shelter, and space it needs to live is called a \_\_\_\_\_.
23. Life supporting portions of Earth composed of air, land, fresh water, and salt water \_\_\_\_\_.
24. An \_\_\_\_\_ involves interactions between physical and living factors.
25. Leaf surface modified to decrease transpiration is a type of \_\_\_\_\_ adaptation in terrestrial flora.

26. The climax community of a region is always its \_\_\_\_\_ plant species.
27. Disease is an example of a density-\_\_\_\_\_ factors.
28. The development of plant communities on newly formed habitats that previously lacked plants is called \_\_\_\_\_.
29. The adaptation that allows animals to find food, protect it from predators, and survive in its environment is called \_\_\_\_\_.
30. Growth of a plant is dependent on the amount of foodstuff which is presented to it in minimum \_\_\_\_\_ quantity \_\_\_\_\_ is \_\_\_\_\_ called \_\_\_\_\_.
31. Azolla is a \_\_\_\_\_ type of hydrophytes.
32. Any unwanted and destructive insect or other animal that attacks food or crops or livestock is called \_\_\_\_\_.
33. Sparse rainfall, plants & animals adapted for water storage & conservation, can be either very, very hot or very cold is called \_\_\_\_\_ biome.
34. The movement of a chemical from the surrounding medium into an organism is called \_\_\_\_\_.
35. Pesticides that kill targeted pest as well as harm other species also is called \_\_\_\_\_.
36. The food is harvested and then exposed to ionizing radiation is called \_\_\_\_\_.
37. Alternative way to control pests that involves natural substance produced by animals to stimulate a response in other members of the same species is called \_\_\_\_\_.
38. Government prevent importation of foreign pests and diseases through \_\_\_\_\_.
39. It allows an animal to look, sound, or act like another animal to fool predators \_\_\_\_\_.
40. A foot fungus is an example of \_\_\_\_\_ relationship.



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F. M. : 55

17 SEP 2024

SECTION "B"

[3Q. × 7 = 21 marks]

Attempt *ANY THREE* questions.

1. What is an ecological pyramid? Write about density-dependent factors for a population?
2. What are alternatives to pesticide use? Describe IPM technology.
3. Explain about trophic levels in a food chain. Explain different types of ecological adaptation by fauna.
4. Describe in detail about any one of the major biomes?

SECTION "C"

[34 marks]

5. Write short notes on: [4Q. × 3=12]
  - a. Anthropogenic causes of climate change
  - b. Air pollution effects on vegetation
  - c. Causes of acid rain
  - d. Lead
6. Differentiate between (*ANY FOUR*): [4Q. × 2=8]
  - a. Primary and secondary air pollutant
  - b. R and K reproductive strategies
  - c. Bioaccumulation and biomagnification
  - d. Psychrophiles and thermophiles microbial growth
  - e. Controlled and uncontrolled anaerobic digestion
7. Give reasons (*ANY FOUR*): [4Q. × 2=8]
  - a. Protective coloration allows animals to blend into its environment
  - b. Air pollution effects fabrics
  - c. Temperature and moisture are important factors for biogas.
  - d. Movement of nutrients is cyclic
  - e. Rainforests have high biodiversity
8. Discuss on levels of organization. [6]

**OR**

List the following

[3Q. × 2=6]

- a. How to calculate abundance and density of a grassland ecosystem?
- b. What is similarity and dissimilarity index?
- c. Write two applications of quadrat in ecological studies.

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