Chapter 13
ORGANISMS AND POPULATIONS

ONE MARK QUESTIONS:

1. What is ecology? (K)
2. Define ecological niche. (K)
3. What are eurythermal organisms? (K)
4. What are stenothermal organisms? (K)
5. What are euryhaline organisms? (K)
6. What are stenohaline organisms? (K)
7. Define homeostasis. (K)
8. Why are certain organisms in the ecosystem called regulators? (U)
9. Why are certain organisms in the ecosystem called conformers? (U)
10. Why evolutionary biologists believe that mammals are successful animals on earth? (A)
11. What is the significance of sweating profusely in mammals during summer? (U)
12. What is the significance of shivering in mammals during summer? (U)
13. Very small animals are rarely found in polar region. Give reason. (U)
14. Why conformers have not evolved to become regulators? (A)
15. How do seeds remain dormant for considerable period of time? (A)
16. Define migration. (K)
17. Define aestivation (K)
18. Define hibernation(K)
19. Define diapause. (K)
20. What is an adaptation? (K)
21. How do kangaroo rats in North American deserts meet their water requirement? (A)
22. How does kangaroo rat in North American deserts conserve water? (A)
23. Many desert plants have a special photosynthetic (CAM) pathway. How does this help the desert plants? (K)
24. Mention an adaptation in desert plants to conserve water. (K)
25. Many desert plants have their stomata arranged in deep pits. How does this help these desert plants? (K)
26. "Some animals, if unable to migrate, might avoid the stress by escaping in time". Justify the statement citing one example. (A)
27. State Allen's rule. (K)
28. Why mammals from colder climate generally have shorter ears and limbs? (A)
29. Mention an adaptation in aquatic mammals of polar seas to reduce loss of body heat. (K)
30. What is blubber? (K)
31. Why total haemoglobin content is higher in people who live at high altitudes, than people living in the plains. (U)
32. At higher altitudes, a man suffers from altitude sickness with symptoms like nausea, fatigue and heart palpitation. Why? (A)
33. Define population. (K)
34. What is age distribution with respect to population? (K)
35. Define natality. (K)

36. Define mortality. (K)
37. What is immigration with reference to population? (K)
38. What is emigration with reference to population? (K)
39. What is an age pyramid? (K)
40. Percent cover or biomass is a more meaningful measure of the population size. Justify the statement with an example. (U)
41. What is meant by exponential growth of population? (K)
42. Write the equation for exponential growth of a population. (K)
43. Write the integral form of the equation for exponential growth of a population. (K)
44. What is meant by logistic growth of population? (K)
45. Write the equation for logistic growth of a population. (K)
46. The logistic growth model is considered more realistic than the exponential growth model. Give reason. (A)
47. Why exponential growth model is not realistic compared to logistic growth model (A)
48. Name an animal that breeds only once in its life time. (K)
49. Name a plant that breeds only once in its life time. (K)
50. Mention the type of population interaction where both the interacting species are benefitted.(K)
51. Name the type of population interaction in which only one interacting species is benefitted while the other is neither benefitted nor harmed. (K)
52. Name the type of population interaction in which only one interacting species is benefitted while the other is affected. (K)
53. Name the type of population interaction in which one interacting species is harmed while the other is unaffected. (K)
54. Define amensalism. (K)
55. Name the principle behind biological pest control method adapted in agriculture. (K)
56. Predators in nature are prudent. Why? (A)
57. How do some species of insects and frogs avoid being detected easily by their predators? (A)
58. What are phytophagous insects? (K)
59. Why cattle and goats never browse *Calotropis*? (A)
60. Mention one chemical substance produced by plants as defence against grazing animals. (K)
61. Define competition. (K)
62. What is interference competition? (K)
63. Define competitive release. (K)
64. State Gause's competitive exclusion principle. (K)
65. What is resource partitioning? (K)
66. What are ectoparasites? (K)
67. What are endoparasites? (K)
68. Mention an example for parasitic plant. (K)
69. What is brood parasitism? (K)
70. Define commensalism. (K)
71. Define mutualism. (K)
72. Define mycorrhizae. (K)
73. Name the type of interaction between fungi and roots of higher plants. (K)
74. Name the type of interaction between cattle and egret. (K)
75. Name the type of interaction between cuckoo and crow. (K)

76. Give the name of Mediterranean orchid that exhibits 'sexual deceit'.(K)

TWO MARK QUESTIONS:

1. Mention the four basic levels of biological organization that ecology is concerned with? (K)
2. Name the two factors responsible for the formation of major biomes on earth. (K)
3. List the major biomes of India. (K)
4. Mention the major abiotic factors of an environment. (K)
5. Differentiate eurythermal and stenothermal organisms. (U)
6. Differentiate euryhaline and stenohaline organisms.(U)
7. Mention four measures by which organisms cope with stressful conditions in their habitat. (K)
8. Write the mechanisms in humans to regulate body temperature in summer and winter. (K)
9. Show a diagrammatic representation of organismic response to abiotic stresses. (S)
10. Thermoregulation is energetically expensive for many organisms. Justify the statement with example. (A)
11. Explain with an example how animals keep constant body temperature by behavioral means? (U)
12. What is migration? Give an example. (K)
13. The organisms if unable to migrate might avoid the stress by escaping in time. Justify the statement with two examples. (K)
14. What is diapause? Mention an example. (K)
15. Write any two adaptations in desert plants to minimize water loss. (K)
16. How do kangaroo rats meet their water requirement and also minimize water loss? (U)
17. Mention two physiological adaptations in kangaroo rat for desert life. (K)
18. Mention any two measures by which the human body compensates low oxygen availability at higher altitudes. (K)
19. Mention any four population attributes. (K)
20. Name the four basic processes that fluctuates population density. (K)
21. Mention the two patterns of population growth in organisms. (K)
22. Show diagrammatic representation of exponential and logistic growth curves of population growth in a combined diagram. (S)
23. Mention any four types of interspecific interactions in organisms. (K)
24. Define predation. Give any two examples. (K)
25. Mention two adaptations in plants to escape from grazers and browsers. (K)
26. Explain interference competition with an example. (U)
27. Explain competitive release with an example. (U)
28. Write short note on resource partitioning with a suitable example. (K)
29. Mention two adaptations in organisms for parasitic mode of life. (K)
30. What are ectoparasites? Give example. (K)
31. What are endoparasites? Give an example. (K)
32. Define commensalism. Give examples. (K)
33. Define mutualism. Give an example. (K)
34. What is brood parasitism? Give an example. (K)

THREE MARK QUESTIONS:

1. Describe any three suspended activities in organisms against abiotic stresses with appropriate examples. (K)

2. Mention the cause and any two symptoms of altitude sickness. Explain how the human body compensates oxygen loss at high altitude? (U)
3. Write a note on altitude sickness. (U)
4. What is resource partitioning? Describe with an example. (K)
5. What is parasitism? Mention the types of parasites with an example for each. (K)
6. What is parasitism? Write a note on brood parasitism. (U)
7. What is parasitism? Mention two adaptations in organisms for parasitic mode of life. (K)
8. What is mutualism? Why plant – animal interaction often involves co - evolution of mutualists? (U)
9. Explain how Mediterranean orchid '*Ophrys*' employs sexual deceit to ensure pollination? (U)

FIVE MARK QUESTIONS:

1. What is ecology? Explain the role of major abiotic factors in any ecosystem. (U)
2. Define homeostasis. Describe how organisms cope with stressful conditions in their habitat. (U)
3. Explain Verhulst – Pearl logistic growth with a diagram and write its mathematical expression. (S)
4. Describe exponential growth with a suitable diagram and give its mathematical equation. (S)
5. Mention any five population interactions with an example for each. (K)
6. Define competition. Explain interference competition and competitive release with suitable examples. (U)
7. Explain the role of predation in an ecosystem with suitable examples. Add a note on morphological and defensive adaptations in plant and animal preys against their predators? (A)
8. What is mutualism? Explain any four examples of mutualism. (U)
10. What is mutualism? Why does plant - animal interaction often involves co - evolution of mutualists? Justify your answer with an example. (U)
9. 'Parasitic mode of life ensures free lodging and free meals'. Justify the statement by listing the special adaptations developed by parasites. (U)
10. Name the type of interactions seen in each of the following examples: (K)
    (a) *Ascaris* worms living in the intestine of humans
    (b) Wasp pollinating an inflorescence
    (c) Clown fish living among the tentacles of sea anemone
    (d) Disappearance of smaller barnacles when *Balanus* dominated the coast of Scotland
    (e) Five closely related species of warblers living on the same tree

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