CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-XII

Subject: Biology

Chapter Name : *Organisms and Populations* (Chapter : 11)

Total : 6 Marks (expected) [MCQ(1)-2 Mark, Assertion-Reason(1)-1 Mark, SA(1)-3 Marks]

Level - 2(Higher Order)

MCQ Type Questions:

1. Which population attribute remains meaningful even when population density is zero?
   Ⓐ Birth rate Ⓑ Death rate Ⓒ Age distribution Ⓓ Sex ratio
   [**Hint:** Think of a population at the time of extinction.]

2. In a survivorship curve, Type I organisms show:
   Ⓐ High mortality in early life Ⓑ Constant mortality
   Ⓒ Mortality concentrated at old age Ⓓ Equal survival at all ages
   [**Hint:** Large mammals strategy.]

3. If resources become unlimited, population growth becomes:
   Ⓐ Logistic Ⓑ Exponential Ⓒ Static Ⓓ Negative
   [**Hint:** Look at J-shaped curve.]

4. Carrying capacity (K) is affected by:
   Ⓐ Birth rate only Ⓑ Death rate only
   Ⓒ Environmental resistance Ⓓ Intrinsic rate of increase
   [**Hint:** Think of limiting factors.]

5. Which interaction benefits both species but is not obligatory?
   Ⓐ Mutualism Ⓑ Commensalism Ⓒ Protocooperation Ⓓ Amensalism
   [**Hint:** Optional association.]

6. Which of the following is NOT a density-dependent factor?
   Ⓐ Predation Ⓑ Competition Ⓒ Flood Ⓓ Disease
   [**Hint:** Abiotic catastrophe.]

7. r-strategists generally show:
   Ⓐ Long life span Ⓑ Late maturity Ⓒ High parental care Ⓓ Rapid reproduction
   [**Hint:** Think insects.]

8. In logistic growth equation, growth rate is maximum when population size is:
   Ⓐ Zero Ⓑ K Ⓒ K/2 Ⓓ 2K
   [**Hint:** Midpoint of S-curve.]

9. Which interaction results in co-evolution?
   Ⓐ Predation Ⓑ Mutualism Ⓒ Amensalism Ⓓ Neutralism
   [**Hint:** Tight reciprocal adaptations.]

10. The most realistic growth curve in nature is:
    Ⓐ J-shaped Ⓑ I-shaped Ⓒ S-shaped Ⓓ Linear
    [**Hint:** Resource limitation exists.]

Assertion-Reason based questions

Directions: The questions 11 to 15 have two statements—Assertion (A) and Reason (R). Of the two statements, mark the correct answer from the options given below :

A. Both Assertion and Reason are true and Reason is the correct explanation of the Assertion
B. Both Assertion and Reason are true but Reason is not the correct explanation of the Assertion
C. Assertion is true, but Reason is false
D. Assertion is false, but Reason is true

11. **Assertion:** Population growth in nature rarely follows exponential growth.
Reason: Environmental resistance always limits population size.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

12. **Assertion:** Parasites usually show high host specificity.
Reason: Parasites evolve along with their hosts.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Co-evolution concept]

13. **Assertion:** Predators help maintain species diversity in ecosystems.
Reason: Predators eliminate inferior competitors.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Keystone species concept.]

14. **Assertion:** r-strategists dominate unstable environments.

Reason: They invest heavily in parental care.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** Check reproductive strategy.]

15. **Assertion:** Population density is best measured in terms of biomass for trees.

Reason: Counting individuals is not meaningful in large plants.

Ⓐ A Ⓑ B Ⓒ C Ⓓ D

[**Hint:** NCERT example.]

Very Short Answer Type Questions (2 marks)

16. Why is age pyramid an indicator of population growth trend?

[**Hint:** Shape reflects future growth.]

17. Define carrying capacity with one factor affecting it.

[**Hint:** Environmental limit.]

18. Why are parasites generally host-specific?

[**Hint:** Adaptation & evolution.]

19. Mention two density-dependent population controls.

[**Hint:** Biotic factors.]

20. Why are lichens good pollution indicators?

[**Hint:** Sensitivity to SO_2.]

Short Answer Type Questions (3 marks)

21. Explain Type I, II and III survivorship curves with examples.

[**Hint:** Mortality pattern vs age.]

22. Distinguish between exponential and logistic growth (any three points).
[**Hint:** Resources & curve shape.]

23. Describe mutualism with two examples.
[**Hint:** Fig–wasp, lichen.]

24. Explain how predators act as biological control agents.
[**Hint:** Natural regulation.]

25. Describe any three adaptations of desert plants.
[**Hint:** Water conservation.]

Long Answer Type Questions

26. Explain population growth models with equations and graphs.
[**Hint:** Exponential & logistic equations.]

27. Describe different population interactions with suitable examples.
[**Hint:** +/+, +/–, +/0, –/0.]

28. Discuss biotic and abiotic factors regulating population size.
[**Hint:** Density dependent vs independent.]

29. Explain adaptations of organisms to extreme environments (desert & aquatic).
[**Hint:** Structural, physiological, behavioral.]

30. Describe age pyramids and their ecological significance.
[**Hint:** Expanding, stable, declining.]

Case-Based Questions

31. A graph shows an S-shaped curve for a deer population in a forest.
(a) Identify the growth model.
(b) What does the plateau phase indicate?
(c) Name two limiting factors.
(d) Why is this model realistic?
Hint: Carrying capacity concept.

32. In a grassland ecosystem, removal of wolves led to overpopulation of deer.
(a) Name the interaction involved.
(b) What happened to plant biomass?
(c) Which ecological concept is highlighted?
(d) Give one example of such predator in India.
Hint: Keystone species.

33. Certain plants show sunken stomata, thick cuticle and CAM pathway.
(a) Identify the habitat.
(b) Name the type of plants.
(c) Explain CAM advantage.
(d) Why are leaves reduced?
Hint: Water conservation strategy.

ANSWER

1.	©	3.	Ⓑ	5.	©	7.	Ⓓ	9.	Ⓑ	11.	Ⓐ	13.	Ⓐ	15.	Ⓐ
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