



Attempt questions first; check the separate key afterward. Use labelled diagrams where asked. Give scientific reasons; answer key covers closed questions.

A. Very short answers - 1 mark each

1. Name the three commonly described levels of biodiversity.
2. Who is associated with the species-area relationship?
3. Write the usual species-area relationship.
4. What does species richness mean?
5. Name conservation within natural habitat.
6. Name conservation outside natural habitat.
7. What is an endemic species?
8. Are all introduced species necessarily invasive?

B. Short answers / practice - 2 marks each

9. Explain genetic diversity with a crop example.
10. Describe the broad latitudinal gradient in species richness.
11. State hypotheses explaining high tropical diversity.
12. Interpret the logarithmic species-area relation.
13. Why may larger areas contain more species?
14. Explain the importance of biodiversity for ecosystem stability.
15. Describe the rivet-popper analogy and its limitations.
16. Compare narrow utilitarian, broad utilitarian and ethical conservation arguments.
17. Explain habitat loss and fragmentation.
18. Describe overexploitation with an example.
19. Explain invasive alien species as a cause of biodiversity loss.
20. Describe co-extinction using a dependent species pair.

C. Application / reasoning - 3 marks each

21. If area increases fourfold and $z=0.5$, find the species-richness multiplier.

22. If $S=10\sqrt{A}$, find S at $A=25$ in the model's area units.

23. Distinguish threatened, endangered and extinct in a general conservation context.

24. What information does a Red Data Book or Red List provide?

25. Explain the concept of a biodiversity hotspot.

26. Why do endemic-rich areas deserve special attention?

27. Compare national parks, wildlife sanctuaries and biosphere reserves conceptually.

28. Explain sacred groves as community conservation.

29. Describe seed banks, cryopreservation and botanical gardens.

30. Why should ex situ conservation complement rather than automatically replace habitat protection?

31. What is the purpose of Ramsar-site designation?

D. Extended practice - 5 marks each

32. Explain patterns of biodiversity and the species-area relationship with a graph.
33. Discuss four major drivers of biodiversity loss with examples and linked consequences.
34. Compare in situ and ex situ strategies, including their strengths and limitations.
35. Design a local conservation plan incorporating habitats, communities, monitoring and sustainable resource use.

ANSWER KEY - Numerical / closed questions

- 1) Genetic, species, ecosystem diversity. 2) Alexander von Humboldt. 3) $S=CA^z$. 4) Number of species in a defined area. 5) In situ conservation. 6) Ex situ conservation. 7) A species restricted to a particular geographical region. 8) No. 21) Two. 22) Fifty. 31) Conservation and wise use of internationally important wetlands.