

Chapter 4 & 5 Review Questions

Directions- On loose-leaf paper, answer the following questions in well-written complete sentences. You do not need to write the question. Number each answer so the number corresponds the question that you have answered. **Only hand-written responses will be accepted. Typed or emailed copies will not be graded.**

Chapter 4 Review Questions

1. Describe the threats to many of the world's shark species (Core Case Study) and explain why we should protect sharks from extinction as a result of our activities.
2. What are the four major components of biodiversity (biological diversity)?
3. What is the importance of biodiversity?
4. What is a fossil and why are fossils important in understanding the history of life?
5. What is biological evolution?
6. What is natural selection?
7. What is a mutation and what role do mutations play in evolution by natural selection?
8. What is an adaptation (adaptive trait)?
9. What is differential reproduction and why is it important?
10. Describe how geologic processes can affect natural selection.
11. How can climate change and catastrophes such as asteroid impacts affect natural selection?
12. What is speciation?
13. Distinguish between geographic isolation and reproductive isolation and explain how they can lead to the formation of a new species.
14. Distinguish between artificial selection and genetic engineering and give an example of each.
15. What is species diversity?
16. Distinguish between species richness and species evenness and give an example of each.
17. Describe the theory of island biogeography (species equilibrium model).
18. According to this theory, what two factors affect the immigration and extinction rates of species on an island?
19. What are habitat islands?
20. Explain why species-rich ecosystems tend to be productive and sustainable.
21. What is an ecological niche?
22. Distinguish between specialist species and generalist species and give an example of each.
23. Distinguish among native, nonnative and indicator species and give an example of each type.
24. What major ecological roles do amphibian species play?
25. List nine factors that help to threaten the health of frogs and other amphibians with extinction.
26. Distinguish between keystone and foundation species.
27. Describe the role of some sharks as keystone species.
28. Describe the role of the American alligator as a keystone species and how it was brought back from near extinction.
29. Describe the role of beavers as a foundation species.

Chapter 5 Review Questions

30. Explain how southern sea otters act as a keystone species in their environment.
31. Define interspecific competition, predation, parasitism, mutualism, and commensalism and give an example of each.
32. Explain how each of these species interactions can affect the population sizes of species in ecosystems.
33. Describe and give an example of resource partitioning and explain how it can increase species diversity.
34. Distinguish between a predator and a prey species and give an example of each.
35. What is a predator–prey relationship?
36. Explain why we should help to preserve kelp forests.
37. Describe three ways in which prey species can avoid their predators and three ways in which predators can increase their chances of feeding on their prey.
38. Define and give an example of coevolution.
39. Describe four variables that govern changes in population size and write an equation showing how they interact.
40. Distinguish between the environmental resistance and the carrying capacity of an environment, and use these concepts to explain why there are always limits to population growth in nature.
41. Why are southern sea otters making a slow comeback and what factors can threaten this recovery?
42. Define and give an example of a population crash.
43. Describe the exploding white-tailed deer population problem in the United States and discuss options for dealing with it.
44. Describe two different reproductive strategies that can enhance the long-term survival of a species.
45. Define population density and explain how it can affect the size of some but not all populations.
46. What is ecological succession?
47. Distinguish between primary ecological succession and secondary ecological succession and give an example of each.
48. Explain why succession does not follow a predictable path.
49. Explain how living systems achieve some degree of sustainability by undergoing constant change in response to changing environmental conditions.
50. In terms of stability, distinguish between inertia (persistence) and resilience and give an example of each.