

ANSWERS --CHAPTER 6 PREPARING FOR THE AP EXAM

MULTIPLE CHOICE QUESTIONS

1. Which of the following is not an example of a density-independent factor?
 - (a) Drought
 - (b) Competition**
 - (c) Forest fire
 - (d) Hurricane
 - (e) Flood
 2. As the size of a white-tailed deer population increases,
 - (a) the carrying capacity of the environment for white-tailed deer will be reduced.
 - (b) a volcanic eruption will have a greater proportional effect than it would on a smaller population.
 - (c) the effect of limiting resources will decrease.
 - (d) the number of gray wolves, a natural predator of white-tailed deer, will increase.**
 - (e) white-tailed deer are more likely to become extinct.
 3. The graph on page 174 of the population growth of Canada geese in Ohio between 1955 and 2002 can best be described as
 - (a) an exponential growth curve.**
 - (b) a logistic growth curve.
 - (c) a stochastic growth curve.
 - (d) oscillation between overshoot and die-off.
 - (e) approaching the carrying capacity.
 4. Which of the following is not a statement of the logistic growth model?
 - (a) Population growth is limited by density-dependent factors.
 - (b) A population will initially increase exponentially and then level off as it approaches the carrying capacity of the environment.
 - (c) Future population growth cannot be predicted mathematically.**
 - (d) Population growth slows as the number of individuals approaches the carrying capacity.
 - (e) A graph of population growth produces an S-shaped growth curve over time.
 5. Which of the following characteristics are typical of r-selected species?
 - I They produce many offspring in a short period of time.
 - II They have very low survivorship early in life.
 - III They take a long time to reach reproductive maturity.
 - (a) I only
 - (b) II only
 - (c) III only
 - (d) I and II**
 - (e) II and III
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6. A high intrinsic growth rate would most likely be characteristic of
- (a) a K-selected species such as elephants.
 - (b) an r-selected species such as the American bullfrog.**
 - (c) a K-selected species that lives near its carrying capacity.
 - (d) a species that is near extinction.
 - (e) a species with a low reproductive rate that takes a long time to reach reproductive maturity.
7. Which of the following descriptions best matches the survivorship curves presented in the figure on page 174?
- (a) Type I could represent the house mouse, which is a typical r-selected species.
 - (b) Type II could be the average of r-selected and K-selected species in a specific area.
 - (c) Type III could represent elephants, which are typical K-selected species.
 - (d) Type I could represent an oak tree species that experiences very low survivorship early and late in life.
 - (e) Type II could represent a coral species that has a constant decline in survivorship throughout its life.**
8. In the coniferous forests of Oregon, eight species of woodpeckers coexist. Four species select their nesting sites based on tree diameter. The fifth species nests only in fir trees that have been dead for at least 10 years. The sixth species also nests in fir trees, but only in live or recently dead trees. The two remaining species nest in pine trees, but each selects trees of different sizes. This pattern is an example of
- (a) resource partitioning.**
 - (b) commensalism.
 - (c) true predation.
 - (d) predator-mediated competition.
 - (e) a keystone species.
9. In the Antarctic food web pictured on page 175, the arrows point from a food source to a consumer. Which of the following statements is not a conclusion that can be drawn from this food web?
- (a) Penguins, other birds, leopard seals, and elephant seals compete for fish.
 - (b) Carnivorous zooplankton and herbivorous zooplankton interact mutualistically.**
 - (c) Leopard seals are predators and penguins are their prey.
 - (d) Krill are omnivores.
 - (e) Smaller toothed whales prey on baleen whales, several species of seals, and penguins.
10. Which of the following statements about ecological succession is correct?
- (a) Secondary succession is followed by primary succession.
 - (b) Primary succession occurs over a shorter time span than secondary succession.
 - (c) Succession is influenced by competition for limiting resources such as available soil, moisture, and nutrients.**
 - (d) In forest succession, less shade-tolerant trees replace more shade-tolerant trees.
 - (e) Forest fires and hurricanes lead to primary succession because a soil base still exists. *Friedland & Relyea Environmental Science for AP** © BFW Publishers 114

11. Which of the following sequences of secondary succession would be likely to occur in abandoned farmland in the eastern United States?

- (a) Bare soil, lichens, mosses, grasses, deciduous trees
- (b) Bare rock, lichens, mosses, grasses, shrubs, mixed shade- and sunlight-tolerant trees
- (c) Bare soil, grasses and wildflowers, shrubs, shade-tolerant trees
- (d) Bare soil, grasses and wildflowers, shrubs, sunlight-tolerant trees, shade-tolerant trees**
- (e) Bare rock, grasses and wildflowers, lichens, mosses, shrubs, coniferous trees

12. The theory of island biogeography suggests that species richness is affected by which of the following factors?

I Island distance from mainland

II How the island is formed

III Island size

- (a) I only
- (b) II only
- (c) III only
- (d) I and III**
- (e) II and III