CHAPTER 5—BIODIVERSITY, SPECIES INTERACTIONS, AND POPULATION CONTROL

MULTIPLE CHOICE

1. Insect-eating warblers reduce interspecific competition by which of the following?
   a. They migrate into the forests at different times of the year, so that they are not present at the same time.
   b. They build their nests in different portions of the same trees.
   c. They do not utilize the same tree type or habitat type.
   d. They spend a significant portion of their time foraging for insects in different parts of the same trees.
   e. They hybridize and produce broods of mixed genetic ancestry.

2. The obvious relationship demonstrated by a food chain is
   a. Competition
   b. Predation
   c. Parasitism
   d. Mutualism
   e. Commensalism

3. A relationship in which a member of one species obtains its nourishment by living on, in, or near a member of another species over an extended time is best labeled
   a. Competition
   b. Predation
   c. Mutualism
   d. Parasitism
   e. Commensalism

4. A relationship in which one species benefits while the other is neither helped nor harmed to any significant degree is best labeled
   a. Competition
   b. Predation
   c. Commensalism
   d. Parasitism
   e. Mutualism

5. A relationship in which both species benefit is best labeled
   a. Competition
   b. Predation
   c. Mutualism
   d. Parasitism
   e. Commensalism

6. Carrying capacity refers to
   a. reproductive rate
   b. interaction of natality and mortality
   c. the maximum size of population the environment will support
   d. the proportion of males to females
   e. the intrinsic rate of increase

7. A population crash occurs when
   a. A population approaches its carrying capacity.
   b. Environmental resistance comes into play gradually.
   c. Resources are essentially unlimited.
   d. A population greatly overshoots carrying capacity, and resulting environmental pressures cause effects.
   e. The population growth rate slows.

8. Which of the following is characteristic of the reproductive pattern of most animals such as whales and elephants?
   a. tend to produce high numbers of offspring
   b. give very little parental care
   c. low survival rate of offspring
   d. long gestation periods
   e. high offspring mortality

9. A large mountain just south of Reno, Nevada, is called Slide Mountain. This name refers to the fact that in the early 1980s, after weeks of heavy precipitation, a large section of this mountain became a destructive mudslide that slid down the east slopes and destroyed the vegetation and homes in its path. In the decades since the mudslide, the vegetation has completely regrown, and the slide area is no longer visible. This is an example of
   a. Primary succession.
   b. Secondary succession.
   c. During the first 10 years following the mudslide it was primary succession, and after that it was secondary succession.
   d. Tertiary succession.
   e. Inertia.
TRUE/FALSE

10. An area in primary ecological succession would be a suitable habitat for a population of hardwoods because of the availability of resources.

11. Limiting factors are physical or chemical factors that can determine the numbers of organisms in a population.

12. The human population can maintain an exponential growth rate indefinitely because of technology.

13. Parasitism occurs when one species feeds on another organism.

COMPLETION

14. The interaction between a lion and a hyena fighting over a dead zebra on the African Savannah is best described as ____________________.

15. Specialized traits or behaviors that allow a reduction of interspecific competition through species specialization in resource use, allow for ____________________.

16. The cattle egret is a large North American bird that commonly sits on the backs of grazing cattle and eats insects that pester the cattle. This is an example of ____________________.

17. When populations of two different species interact over time in a way that drives changes in their gene pools, it can be said that ____________________ occurs.

SHORT ANSWER

18. Clearly describe in what ways predation is actually beneficial to the prey population.

19. Compare and contrast primary succession and secondary succession.

20. You are visiting a nature preserve in Costa Rica with a classmate. Your companion comments on the bright colors and beauty of many species of frogs and insects that you encounter on your excursion. Explain to this person the function that the bright colors serve in the context of ecosystem functioning.
CHAPTER 6—THE HUMAN POPULATION AND URBANIZATION

MULTIPLE CHOICE

1. Which of the following is a major factor in human population increase in the last 200 years?
   a. Humans have developed the ability to expand into almost all of the planet’s climate zones.
   b. Early and modern agriculture has allowed more people to be fed per unit of land area.
   c. Improved health and sanitation has lowered the death rate.
   d. All of these are correct answers
   e. Only two of these choices are correct answers

2. The cultural carrying capacity is the
   a. number of humans the planet can support with consumptive lifestyles
   b. maximum number of people the Earth can support at a reasonable level of comfort and freedom without impairing the planet’s ability to sustain future generations in the same way
   c. the maximum number of people that can be supported in a fashion that allows them to pursue culturally satisfying forms of social interaction
   d. the degree to which an urban area can support a variety of cultural entities such as museums and symphony orchestras
   e. same thing as the standard, typical carrying capacity in any population of plants or animals in nature

3. Which of the following would decrease the likelihood of a couple having a child?
   a. The child is part of the family labor pool.
   b. Contraceptives are not available.
   c. They have no public or private pension.
   d. Women have many opportunities to participate in the work force.
   e. Infant mortality rates are high.

4. Scientific studies and experience have shown that the most effective ways to slow or stop population growth are
   a. government intervention such as seen in China
   b. reduction of poverty
   c. elevating the status of women
   d. elevating the status of women and family planning and reproductive health care
   e. reduction of poverty, family planning and reproductive health care, and elevating the status of women

   TRUE/FALSE

5. Family planning, economic opportunities for women, and schooling for girls generally produces a higher birth rate.

6. Birth and death rates generally decline as countries develop economically.

7. A major factor in human population increase in the last 200 years is the emergence of early and modern agriculture.

8. The environmental limits that will control growth of the human population are precisely known by scientists.
COMPLETION

9. __________________ refers to a process in which an increasing proportion of an entire population lives in cities and the suburbs of cities.
10. Urban areas with poor sanitation and numerous health risks will generally have a low __________________.
11. Analysts vary as to their opinion of which factor is the more serious threat to the Earth’s life support systems: _________________ or _________________.

SHORT ANSWER

12. Briefly explain the root cause of the increase in the world’s population during the last 100 years.

13. List the four ways that overpopulation affects natural capital degradation of water resources.

14. List and briefly describe the factors that affect a country’s average birth rate and total fertility rate.

16. Briefly explain how water resources will be strained with continued overpopulation.

17. Briefly explain how food resources will be strained with continued overpopulation.

18. Briefly explain how energy resources will be strained with continued overpopulation.

19. How does overpopulation in the United States affect other countries?

20. What are the three main solutions to the overpopulation problem?