Chapter 21 Study Guide

Completion

*Complete each sentence or statement.*

1. If food is scarce, it becomes a(n) ______________ factor that prevents population growth.
2. The study of how living things interact with each other and with their environment is called ______________.
3. A group of zebras breaking off from a herd decreases the size of the herd population through ______________.
4. A flea is a parasite that lives on a(n) ______________ such as a dog.
5. The type of succession that occurs in an area where an ecosystem has been disturbed, but where soil and organisms still exist, is called ______________ succession.
6. Observing animal tracks is an example of ______________ observation, which is used to estimate population size.
7. All the biotic and abiotic factors in an area together make up a(n) ______________.
8. The struggle of two species to occupy a certain niche in an ecosystem is an example of ______________.
9. The ______________ method of estimating involves multiplying the number of organisms in a small area to find the number in a larger area.
10. A close relationship between two species that benefits at least one of the species is known as ______________.
11. The main way that populations increase in size is through the ______________ of offspring.
12. Prairie dogs, snakes, and grass make up a level of ecological organization called a(n) ______________.
13. Two abiotic factors that are needed for photosynthesis are sunlight and ______________.
14. A hawk building a nest on the arm of a cactus without hurting the cactus is an example of the symbiotic relationship called ______________.
15. A lack of places to build nests is an example of ______________ as a limiting factor for a population of birds.
16. The part of an ecosystem where an organism lives and feeds is called the organism’s ______________.
17. The thick fur of a polar bear is a(n) ______________ that allows the bear to live successfully in its environment.
18. Scientists who study how living things interact with the environment are called ______________.
19. Ticks feed on the blood of mice in a symbiotic relationship called ______________.
20. Water, sunlight, and soil are ______________ factors in an ecosystem.
Use the diagram to answer each question.

**Pheasant Population**

21. What was the population density of pheasants in 1968, 1976, and 1990?

22. Which letter marks the peak of the pheasant population?

23. How was the pheasant population changing at Point A?

24. What happened to the pheasant population between Point B and Point C?

25. In 1990, a large resort hotel was built on the island where these pheasants live. Explain how this might have affected the pheasant population.

26. What are some possible explanations for the change in pheasant population between Point B and Point C?
Use the diagram to answer each question.

Prairie Ecosystem

27. Describe one of the prairie dog’s adaptations and how it helps the prairie dog to survive.
28. What is the smallest unit of organization in an ecosystem? Give one example from the diagram.
29. Describe three factors that could limit the growth of the prairie dog population.
30. Describe two things the prairie dogs need to live that they obtain from their habitat.
31. What level of ecological organization do all of the owls in a certain area represent?
32. Is the prairie soil a biotic factor or an abiotic factor? Explain your answer.

Essay

33. Explain the difference between a population and a community.
34. Classify these examples of symbiosis by type and explain your choice: 1) Inside a human’s intestine live bacteria that make vitamin K; 2) A human picks up bacteria on his or her hands. The bacteria do not cause disease but do feed on the human’s dead skin cells; 3) A tick attaches itself to a human and feeds on the human’s blood.
35. Explain the difference between direct and indirect observation in determining population size.
36. Explain why two different species in an ecosystem can share the same habitat but not the same niche.
37. Explain why the populations of a predator and its prey often follow regular cycles.
38. Explain why secondary succession usually occurs more rapidly than primary succession.
39. Define *abiotic factor* and give four examples.

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

__ 40. The first species to populate an area where primary succession is taking place are called__

a. primary species.

b. secondary species.

c. succession species.

d. pioneer species.

__ 41. The place where an organism lives and that provides the things the organism needs is called its__

a. species.

b. community.

c. habitat.

d. population.

__ 42. A close relationship between two species that benefits at least one of the species is called__

a. adaptation.

b. natural selection.

c. symbiosis.

d. competition.

__ 43. An organism’s habitat must provide all of the following EXCEPT__

a. food.

b. water.

c. shelter.

d. predators.

__ 44. The series of changes that occurs after a disturbance in an existing ecosystem is called__

a. pioneer succession.

b. primary succession.

c. secondary succession.

d. disturbance succession.

__ 45. An early winter frost preventing further growth in a tomato garden is an example of__

a. carrying capacity.

b. indirect observation.

c. a limiting factor.

d. a biotic factor.

__ 46. Mutualism, commensalism, and parasitism are the three types of__

a. symbiotic relationships.

b. competition.

c. prey adaptations.

d. predation.

__ 47. The study of how things interact with each other and with their environment is called__

a. community.

b. photosynthesis.

c. biotic studies.

d. ecology.
48. The struggle between organisms to survive in a habitat with limited resources is called
   a. symbiosis.
   b. parasitism.
   c. predation.
   d. competition.

49. An organism's particular role in its habitat, or how it makes its living, is called its
   a. niche.
   b. competition.
   c. ecosystem.
   d. carrying capacity.

50. The nonliving parts of an ecosystem are called
   a. abiotic factors.
   b. biotic factors.
   c. populations.
   d. organisms.

51. When a flea is living on a dog, the dog is the
   a. predator.
   b. prey.
   c. host.
   d. parasite.

52. The smallest unit of ecological organization is a single
   a. community.
   b. organism.
   c. population.
   d. ecosystem.

53. Which of the following describes an interaction in which one organism kills and eats another?
   a. competition
   b. predation
   c. symbiosis
   d. mutualism

54. Counting the number of organisms in a small area and multiplying to estimate the number in a larger area is called
   a. sampling.
   b. direct observation.
   c. population density.
   d. mark and recapture.

55. A hawk building its nest on an arm of a saguaro cactus is an example of
   a. mutualism.
   b. predation.
   c. parasitism.
   d. commensalism.

56. The *Escherichia coli* that live in your intestine and help break down food are an example of which type of interaction?
   a. predation
   b. parasitism
   c. competition
   d. mutualism
57. Population density is defined as
   a. the smallest level of ecological organization.
   b. an approximation of a number, based on reasonable assumptions.
   c. the number of individuals of a population in a specific area.
   d. the number of individuals moving into a population.

58. If you count 20 beetles in a garden measuring 5 square meters, the population density of the beetles is
   a. 20 beetles per square meter.
   b. 4 beetles per square meter.
   c. 5 beetles per square meter.
   d. 100 beetles per square meter.

59. All the different populations that live together in an area make up a(n)
   a. ecosystem.
   b. community.
   c. organism.
   d. species.

60. Which of the following is a biotic factor in the prairie ecosystem?
   a. water
   b. soil
   c. sunlight
   d. grass

61. When a jellyfish paralyzes a tiny fish with its poisonous tentacles, the fish is the
   a. parasite.
   b. prey.
   c. host.
   d. predator.

62. An approximation of a number, based on reasonable assumptions, is called a(n)
   a. immigration
   b. biotic factor
   c. limiting factor
   d. estimate

63. Which of the following is an example of a predator adaptation?
   a. a shark’s powerful jaws
   b. a porcupine’s needles
   c. a plant’s poisonous chemicals
   d. a frog’s bright colors

64. All of the following are examples of limiting factors EXCEPT
   a. food.
   b. weather conditions.
   c. soil.
   d. space.

65. The largest population that an environment can support is called its
   a. death rate.
   b. birth rate.
   c. carrying capacity.
   d. limiting factor.
66. To carry out photosynthesis, algae and plants use the abiotic factors sunlight, carbon dioxide, and
   a. water.
   b. bacteria.
   c. soil.
   d. salt.

67. A group of antelope leaving the herd in search of better grassland is an example of
   a. increasing birth rate.
   b. decreasing death rate.
   c. emigration.
   d. immigration.

68. The behaviors and physical characteristics of species that allow them to live successfully in their
   environment are called
   a. limiting factors.
   b. biotic factors.
   c. habitats.
   d. adaptations.

69. Which of the following is an example of a population?
   a. the gray wolves in a forest
   b. the rocks in a rock collection
   c. the cats and dogs in your neighborhood
   d. the bushes and grass in a park