Student: _____

1. Which of these factors will limit the size of a population?
    A. availability of food and energy
    B. disposal of waste
    C. interaction with other organisms
    D. All of these answers are correct.

2. Gene flow is
    A. used for comparison purposes when numbers of organisms or size of organisms would lead to confusion.
    B. the optimum number of individuals of a species that can survive.
    C. movement of genes within a population from place to place resulting from migration.
    D. graphic expression of increasing or decreasing numbers.

3. When a hurricane destroys a forest and kills many of the organisms living there, it is referred to as
    A. an extrinsic limiting factor.
    B. a density-dependent limiting factor.
    C. an intrinsic limiting factor.
    D. None of these answers is correct.

4. A population is not changing in size during the _____ phase.
    A. death
    B. exponential
    C. stable equilibrium
    D. None of these answers is correct.

5. At present the human population is
    A. in the death phase
    B. growing rapidly
    C. stable
    D. in the lag phase

6. If 100 bean seeds were planted in an area the size of your textbook and they all started to grow, you would expect
    A. the size of the population to increase.
    B. the biomass to decrease.
    C. the size of the population to decrease and the size of the biomass to increase.
    D. the size of the population to increase and the size of the biomass to decrease.

7. If 100 bean seeds were planted in an area the size of your textbook and they all started to grow, you would expect
    A. the population density to increase.
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8. Which would be an example of a density-dependent limiting factor?
    A. A flood kills all the people in a densely populated city, but few in the less densely populated countryside.
    B. The more mice there are on an island, the less food each has to eat.
    C. The more mice there are on an island, the more rapidly the population grows.
    D. As the number of people on the Earth increases, many other kinds of organisms go extinct.

9. For most of its approximately million year history, the human population has been in the _____ phase of population growth.
   A. lag
   B. exponential growth
   C. deceleration
   D. stable equilibrium

10. The carrying capacity of an area for a plant is most likely determined by
    A. accumulation of waste products.
    B. availability of raw material and energy.
    C. constant birthrate.
    D. low biotic potential.

11. The number of offspring that could be born is the
    A. sex ratio.
    B. exponential growth phase.
    C. population.
    D. reproductive capacity.

12. The carrying capacity of an area decreases if
    A. the waste products are not removed.
    B. the birthrate lowers.
    C. more food is available.
    D. All of these answers are true.

13. The phase of a population growth curve that comes after the lag phase is the
    A. stable equilibrium phase.
    B. deceleration phase.
    C. exponential growth phase.
    D. death phase.

14. The human population will be in the stable equilibrium phase when the number of births _____ the number of deaths.
    A. is greater than
    B. equals
    C. is less than
    D. is half

15. Available energy, in part, determines the
    A. carrying capacity.
    B. gene flow.
    C. reproductive potential.
    D. All of these answers are correct.

16. A population with five males and five females is an example of
    A. age distribution.
    B. gene flow.
    C. sex ratio.
    D. reproductive capacity.

17. The carrying capacity of the Earth for humans is influenced by
    A. food and energy supply.
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    C. interaction with other organisms.
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18. An epidemic of the life-threatening disease, cholera, due to water pollution would probably result in
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    B. an immediate increase in the numbers of persons in the lower social castes of the population.
    C. a decrease in population, which is probably not permanent.
    D. a slight increase because resistant people will reproduce immediately.

19. Space is a factor involved in determining
    A. gene flow.
    B. evolution.
    C. carrying capacity.
    D. None of these answers is true.

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    C. stable equilibrium phase.
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21. Which interactions with other organisms will help to determine the carrying capacity of Earth for humans?
    A. cutting of forest to increase agricultural land
    B. interracial mating
    C. human death as a result of war
    D. slight change in sex ratio

22. A factor that directly affects the carrying capacity of a grasshopper population is
    A. the amount of sunlight.
    B. the number of insect-eating birds present.
    C. the amount of nitrogen in the soil.
    D. None of these answers is correct.

23. The carrying capacity of an area can be reduced if there is too much
    A. energy.
    B. raw material.
    C. waste.
    D. All of these answers are true.

24. One observer noted that a male wood duck from Florida mated with a female wood duck from California. This is an example of
    A. gene flow.
    B. gene frequency.
    C. range.
    D. age distribution.

25. The carrying capacity of an area is determined by
    A. food, temperature, and diseases.
    B. diseases, predators, and space.
    C. light, diseases, and the season of the year.
    D. All of these answers are true.

26. How would decreasing the amount of raw material and keeping all other factors the same affect the human population?
    A. It would increase the average life span of the human population.
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    A. is typically 1:1 in species where both parents support the raising of young.
    B. is often dominated by males.
    C. is never greater than 1 female to 1 male.
    D. All of these conditions are true.

28. The carrying capacity of an area is
    A. the optimum number of different species that can grow and reproduce there.
    B. the optimum number of individuals of a species that can survive and reproduce.
    C. the minimum number of individuals of a species that can survive and reproduce.
    D. the number of individuals of a species found in an area.

29. Interactions with other organisms affect the human population growth curve
    A. when organisms that cause human deaths become extinct.
    B. because other organisms are our food.
    C. when beneficial organisms protect crops from disease organisms.
    D. All of these answers are true.

30. The reproductive capacity of a species is
    A. the number of offspring a female can produce.
    B. the number of offspring that survive to become reproducing members.
    C. decreased when the stable equilibrium phase is reached.
    D. largely dependent on the environment.

31. The rapid increase in the human population over the past 200 years is primarily due to
    A. an increase in biotic potential.
    B. removal of many kinds of limiting factors.
    C. an increase in natality.
    D. All of these answers are true.

32. The theoretical maximum rate of reproduction that can be attained is known as the
    A. biotic potential.
    B. lag phase.
    C. limiting factor.
    D. density-dependent limiting factor.

33. When a limiting factor becomes more important as the size of the population increases, it is known as a(n)
    A. biotic potential.
    B. density-independent limiting factor.
    C. density-dependent limiting factor.
    D. intrinsic factor.

34. If something in the environment controls a population level and is uninfluenced by the population size, it is known as
    A. a biotic factor.
    B. a density-dependent limiting factor.
    C. a density-independent limiting factor.
    D. None of these answers is true.

35. Population control factors that arise from outside the population are called
    A. extrinsic limiting factors.
    B. density-independent limiting factors.
    C. intrinsic limiting factors.
    D. density-dependent limiting factors.

36. Since a small change in the amount of nitrogen in the soil greatly affects plant growth, it is known as a(n)

    A. biotic potential.
    B. limiting factor.
    C. intrinsic factor.
    D. mortality factor.

37. Five hundred forty-one people per thousand die of this disease. This is a statement about
    A. an extrinsic limiting factor.
    B. environmental resistance.
    C. mortality.
    D. All of these answers are correct.

38. Statistics show that thirty-four people per thousand enter the population by birth. This is a statement about
    A. mortality.
    B. the stable equilibrium phase of a population growth curve.
    C. the lag phase of a population.
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39. A biologist from the United States Forest Service estimated the population of guppies in a pond to be 30,000 per cubic meter. This is also known as the
    A. population density.
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    D. None of these answers is true.

40. As the size of the wolf population in Yellowstone National Park has increased, many wolves have migrated from the park into areas around the park. This migration is the result of
    A. population pressure.
    B. sex ratio changes.
    C. natality.
    D. gene frequency changes.

41. The destruction of a field of cotton plants by a flood is an example of an _____ limiting factors.
    A. intrinsic and density-dependent
    B. intrinsic and density-independent
    C. extrinsic and density-dependent
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42. Which of the following is a population?
    A. all the different species of insects in a woodlot
    B. all the sugar maple trees in a woodlot
    C. all the carnivores in a woodlot
    D. all the wildflowers in a woodlot

43. The sum of all the different kinds of limiting factors is
    A. biological amplification.
    B. environmental resistance.
    C. biotic potential.
    D. symbiosis.

44. Carrying capacity can be reduced with an increase in
    A. energy.
    B. raw materials.
    C. space.
    D. waste products.

45. Biotic potential is
    A. the average number of offspring that survive a single mating.
    B. generally equal to the number of offspring needed to maintain a population.
    C. the movement of genes from one species to another.
    D. the theoretical maximum rate of reproduction.

46. The population will be largest during the
    A. lag phase.
    B. exponential growth phase.
    C. stable equilibrium phase.
    D. death phase.

47. Natality is greater than mortality during the _____ phase.
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    B. lag
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48. During wine-making, yeast cells obtain energy by fermenting sugar. Alcohol and CO_2 are products of this process. When alcohol content reaches a certain level, the yeast cells can no longer survive. The limiting factor to yeast growth in this example is the
    A. availability of raw materials.
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49. A population with an abundance of resources and no limiting factors will experience
    A. a lag phase.
    B. exponential growth.
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50. The number of individuals per unit area is the
    A. age distribution.
    B. biotic potential.
    C. distribution ratio.
    D. population density.

51. Which of the following populations would have the highest population growth rate?
    A. a population with a high natality and a high mortality
    B. a population with very few old animals in it and a large number of young animals
    C. a population in which 65% of the animals are males
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52. Which one of the following best illustrates a density-dependent limiting factor?
    A. A farmer uses insecticide to kill large numbers of insect pests.
    B. As the human population rises, more people will starve.
    C. In the spring of the year, many animals disperse to new locations.
    D. Plants usually have difficulty getting enough oxygen.

53. Currently, the human population of the world
    A. has reached its carrying capacity.
    B. is stable.
    C. is declining in much of the world.
    D. is increasing rapidly.

54. Which one of the following would result in an increase in the rate at which a population grows?
   A. reduction in the birthrate
   B. reduction in the number of females
   C. reduction in the death rate
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55. As the size of a population approaches the carrying capacity
   A. the number of births and deaths are about equal.
   B. the population is in the lag phase.
   C. density-dependent limiting factors are not important.
   D. the biomass decreases.

56. The human population is
   A. at its carrying capacity.
   B. growing rapidly.
   C. declining on a worldwide basis.
   D. approximately 5 million people.

57. The number of new individuals added to the population by reproduction is called
   A. morbidity.
   B. mortality.
   C. natality.
   D. exponential growth.

58. In aquatic ecosystems one of the major factors that determines the carrying capacity is the
   A. amount of nutrients in the water.
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59. The way individuals within a population are arranged with respect on one another is called population
   A. diversity.
   B. density.
   C. logistics.
   D. distribution.

60. These small short-lived organisms have a reproductive strategy to produce many offspring that have fluctuating populations.
   A. r-strategists
   B. k-strategists
   C. l-strategists
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61. Which of the following is likely to lead to a clumped population distribution?
   A. population of animals dependent on rare resources.
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17 Key

1. Which of these factors will limit the size of a population?
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17 Summary

Category	# of Questions
Blooms Level: 1. Remember	36
Blooms Level: 2. Understand	24
Blooms Level: 5. Evaluate	2
Enger - Chapter 17	62
Learning Outcome: Define a population.	1
Learning Outcome: Describe and draw the stages of a typical population growth curve.	10
Learning Outcome: Identify key components that cause population growth.	8
Learning Outcome: Identify the factors that ultimately limit population size.	28
Learning Outcome: List methods that would effectively control human population size.	3
Learning Outcome: State how age distribution, sex ratio, and density can affect the rate of population growth.	13
Learning Outcome: State the importance of the birthrates and deathrates to population growth.	7
Learning Outcome: State why the human population must have an upper limit.	8
Section: 17.01	11
Section: 17.02	9
Section: 17.03	10
Section: 17.04	18
Section: 17.05	4
Section: 17.06	10
Section: 17.07	12
Section: 17.08	9
Topic: Population Ecology	62