

1. A population can best be described as all of the
- 1 plants in a particular place
 - 2 animals in a particular place
 - 3 different organisms in one place at a particular time
 - 4 organisms of one species in one place at a particular time

2. An example of a population in a lake is all of the
- 1 lake trout
 - 2 lake trout and brown trout
 - 3 plants and trout
 - 4 soil, plants, and fish

3. A community can best be described as all of the
- 1 plant species in one particular place
 - 2 organisms of one species in a particular place
 - 3 populations that interact in a particular place
 - 4 animals that interact in a particular place

4. An environment can support only as many organisms as the available energy, minerals, and oxygen will allow. Which term is best defined by this statement?
- 1 biological feedback
 - 2 homeostatic control
 - 3 carrying capacity
 - 4 biological diversity

5. The carrying capacity of a given environment is least dependent upon
- 1 recycling of materials
 - 2 the availability of food and water
 - 3 the available energy
 - 4 daily temperature fluctuations

6. When a population experiences zero growth, the
- 1 death rate increases faster than the birth rate does
 - 2 birth rate increases and the death rate drops
 - 3 death rate increases and the birth rate drops
 - 4 birth rate and the death rate are about equal

7. Competition between organisms can best be described as an interaction in which the organisms
- 1 rely on the same resources
 - 2 work together to find food
 - 3 live in the same place but eat different food
 - 4 eat the same food but live in different places

8. Although three different bird species inhabit the same type of tree in the same forest, there is very little competition among them. The most likely reason for this is that the birds
- 1 are unable to interbreed
 - 2 have different ecological niches
 - 3 have a limited supply of food
 - 4 share food with each other

9. A parasitic relationship differs from a predator-prey relationship in that a
- 1 host organism is killed right away whereas prey is not
 - 2 prey organism is killed right away whereas a host is not
 - 3 parasite helps its host whereas a predator kills its prey
 - 4 prey organism benefits whereas a parasite's host does not

10. Some crocodiles let small birds enter their mouths to pick bits of food from between their teeth. The crocodiles get clean teeth, while the birds get an easy meal. In this type of relationship,
- 1 both animals benefit
 - 2 both animals are harmed
 - 3 only the crocodiles benefit
 - 4 only the birds benefit

11. The relationship between the crocodiles and birds could be described as a
- 1 predator-prey relationship
 - 2 parasite-host relationship
 - 3 symbiotic relationship
 - 4 competitive relationship

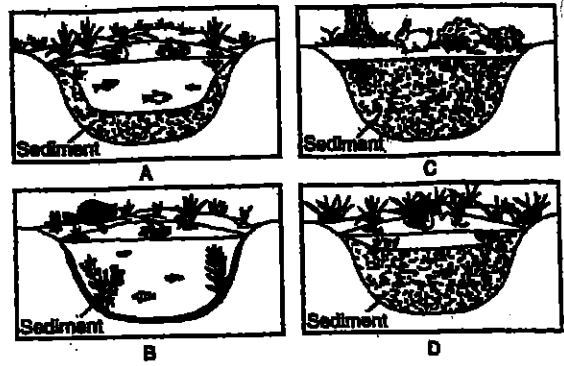
12. In a certain ecosystem, rattlesnakes are predators of prairie dogs. If the prairie dog population started to increase, how would the ecosystem most likely regain stability?
- 1 The rattlesnake population would start to decrease.
 - 2 The prairie dog population would increase rapidly.
 - 3 The rattlesnake population would start to increase.
 - 4 The prairie dog population would begin to prey on the rattlesnakes.

20.

Compare and contrast predation and parasitism. Your answer should include:

- ◆ the definitions of predation, predator, prey
- ◆ the definitions of parasitism, parasite, host
- ◆ one way predation and parasitism are similar
- ◆ one way predation and parasitism are different

Base your answers to questions 22-25 on the stages of succession shown below and on your knowledge of biology.



22.

What is the correct sequence of these stages?

- 1 B → A → D → C
- 2 C → B → A → D
- 3 A → D → C → B
- 4 D → A → C → B

23.

Which statement helps to explain this type of succession?

- 1 Species are replaced until an unstable ecosystem is established.
- 2 Species are replaced until a stable ecosystem is established.
- 3 Humans replace all species over time and fill all niches.
- 4 Animals control all changes in the plant species of an area.

24.

Which population of organisms would be most harmed by the ecological changes occurring in this succession?

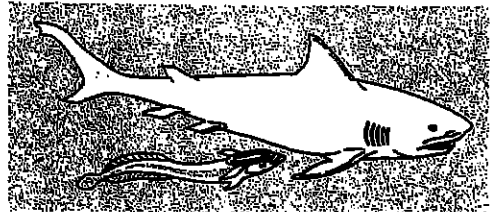
- 1 trees
- 2 fish
- 3 raccoons
- 4 rabbits

25.

Identify one factor that could disrupt the final stage of this ecosystem.

21.

As shown in the following art, the remora has a suckerlike disk on its head by which it attaches to the underside of a shark. The remora feeds on leftovers from the shark's meals, without taking anything from the shark's body. This is an example of a symbiotic relationship in which

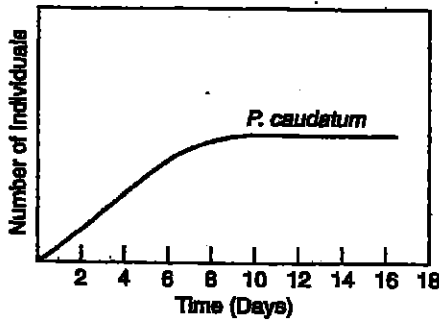


- 1 both parties benefit by being able to catch more food.
- 2 one party benefits and the other is directly harmed
- 3 one party benefits and the other is apparently unaffected
- 4 both parties are harmed by not being able to swim as fast

13. Succession in an ecosystem is usually a

- 1 sudden event that changes the ecosystem
- 2 series of very rapid changes in the area
- 3 series of slow changes that occur in the area
- 4 short period of rapid change followed by a stable period

Refer to the graph below, which shows the growth curve for a population of *Paramecium caudatum*, to answer questions 14 & 15.



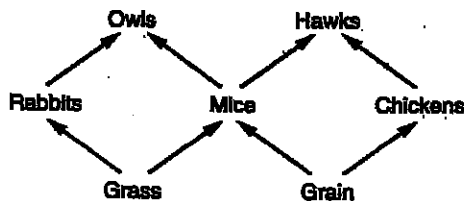
14. Why does the slope of the graph increase from the beginning to the middle?

- 1 The death rate begins to increase.
- 2 The growth rate slows after four days.
- 3 The population grows while it is below carrying capacity.
- 4 There is intense competition for resources.

15. The level (flat) portion at the top of the graph indicates that the population

- 1 is growing
- 2 is shrinking
- 3 is neither growing nor shrinking
- 4 no longer exists in that location

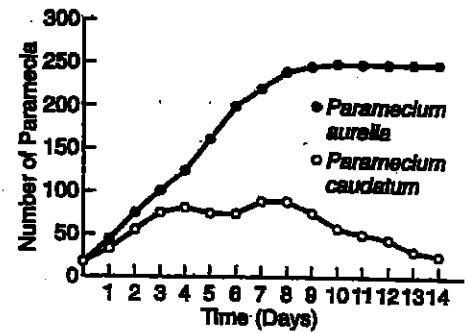
Refer to the diagram below to answer question 16.



16. Based on the diagram, which of the following statements is true?

- 1 Rabbits and owls compete for grass.
- 2 Mice and chickens compete for grain.
- 3 Rabbits and chickens compete for grass.
- 4 Chickens and rabbits compete for grain.

The following graph shows the growth curves for two different populations of paramecia species (*P. aurelia* and *P. caudatum*), grown in the same culture dish for 14 days.

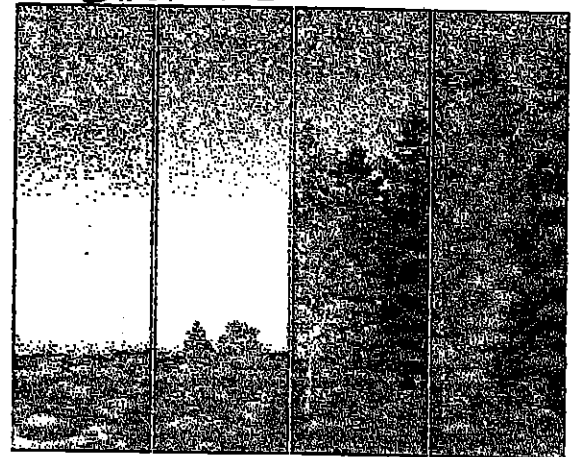


17. (a) Which ecological concept is best represented by this graph?

- 1 recycling
- 2 competition
- 3 equilibrium
- 4 decomposition

18. (b) State one possible reason for the decline in the number of *P. caudatum*.

19. The diagram below illustrates Circle the correct answer.



- 1 competition between different types of plant life
- 2 rapid ecological succession after a forest fire
- 3 gradual succession from bare rock to stable forest
- 4 evolution of plant life on Earth over two billion years