

## Ecology

### Multiple Choice

Identify the choice that best completes the statement or answers the question.

- B 1. Why are invasive species able to displace many species in an area?
- They are in an environment where they are better able to deal with diseases and parasites
  - They are in an environment that has not adapted to them and they can take over many niches at once
  - They have a very narrow realized niche but they are very able to use all of the available resources
  - They wait for the right moment to attack so you never see them coming.
- D 2. When Mr. Curry hikes around Marrott Park with his dog he notices Canadian geese, red-eared slider turtles, minnows and many species of trees. What level of organization has he noticed?
- cell
  - individual
  - ecosystem
  - community
- D 3. All of the possible biotic and abiotic factors that an organism can take advantage of is the...
- hopes and dreams
  - realized niche
  - ecosystem
  - fundamental niche
- B (4) <sup>Key</sup> When Mr. Curry hikes around Marrott Park with his dog he notices Canadian geese, red-eared slider turtles, minnows and many species of trees. What level of organization has he noticed?
- individual
  - community
  - ecosystem
  - cell
- C 5. Which population would be more affected by a loss of producers; rabbits (primary consumers) or wolves (secondary consumers)?
- rabbits
  - the producers
  - wolves
  - none of the above
- A 6. An organism's niche is
- the range of physical and biological conditions in which an organism lives and the way in which it uses those conditions.
  - all the physical and biological factors in the organism's environment.
  - a full description of the place an organism lives.
  - the range of temperatures that the organism needs to survive.
- D 7. The most important abiotic factors in a biome are..
- prevailing winds and ocean currents
  - altitude and prevailing winds
  - types of animals and plants
  - temperature and rainfall
- C 8. A snake that eats a frog that has eaten an insect the fed on a plant is a:
- secondary consumer
  - primary consumer
  - tertiary consumer
  - producer
- C 9. An organism that feeds on other organisms called a(n):
- detritivore
  - autotroph
  - heterotroph
  - carnivore



## Matching

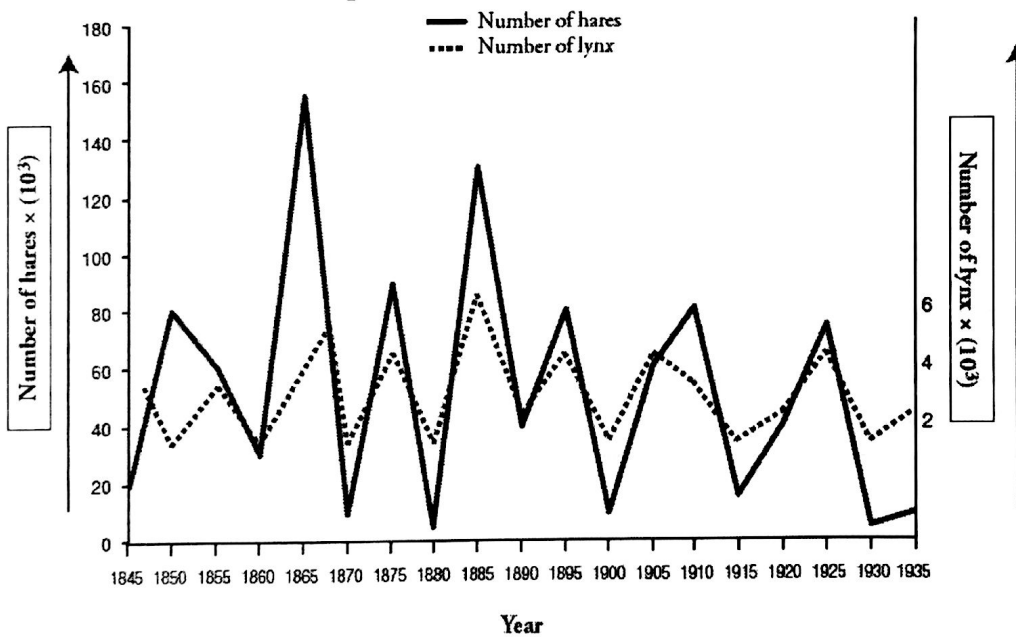
Match the type of symbiosis described below with its description.

- |                 |                        |
|-----------------|------------------------|
| a. parasitism   | d. predation/herbivory |
| b. mutualism    | e. competition         |
| c. commensalism |                        |

- D 19. a raccoon eats grubs from the ground
- A 20. a tick sucks blood from a dog
- B 21. a sea anemone provides housing for a clown fish while the clown fish attracts prey for the anemone
- C 22. a remora eats the remains of shark kills while not affecting the shark
- E 23. sparrows and nut hatches eat grass seed from the same yard.

## Model 1 – Predator–Prey Relationships

Relationship between Snowshoe Hares and Lynx



24. A researcher notices that the population of hares is increasing from 1930 to the end of the graph. What would be a reasonable prediction for what the population of lynx will do?

- a. Increase at a similar rate to the population of hares
- b. Increase more rapidly than the hares
- c. Decrease until the hare population becomes stable
- d. Remain unchanged

25. If lynx population were to go above the hare population, what would be the likely effect on the hare population?

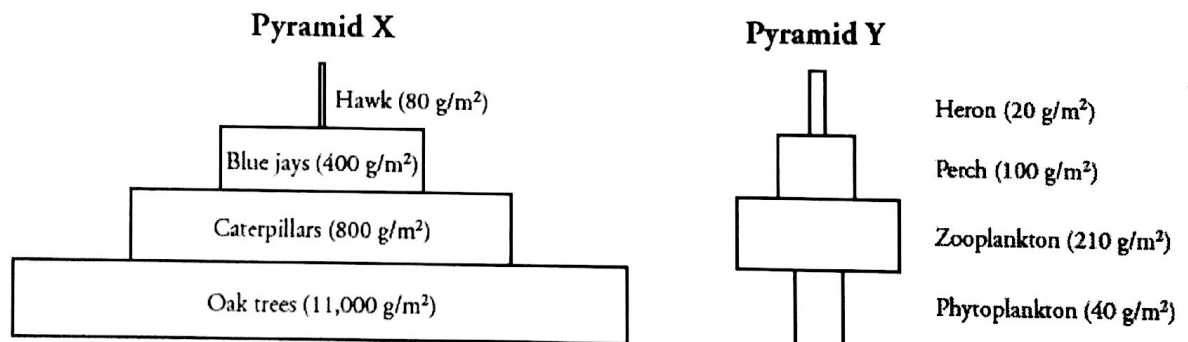
- a. It would increase along with the lynx
- b. It would rapidly decrease due to increased predation
- c. It would remain stable because there is no relationship between lynx and hare populations
- d. It would decrease but due to disease

26. Why is the population of lynx approximately  $1/10^{\text{th}}$  that of the population of hares?

- a. Lynx are at a lower trophic level than hares so there are usually fewer of them
- b. Hares are the primary food source for lynx so only  $1/10^{\text{th}}$  of the energy of the hares is actually able to be turned into biomass for the lynx
- c. Lynx compete more with each other than hares so there are always fewer lynx
- d. lynx hate crowds

27

### Model 3 – Pyramid of Biomass



27. How can pyramid Y exist with a smaller biomass at the producer level?

- a. Phytoplankton are very nutritious so not as many are needed to support an ecosystem
- b. Animals in aquatic ecosystems do not need to eat as much
- c. Phytoplankton reproduce rapidly so they can support an ecosystem even at a lower biomass
- d. This pyramid cannot exist

28. If hawks were only feeding on blue jays (this would never actually happen) and the blue jay biomass dropped to  $150 \text{ g/m}^2$  what would happen to the hawks in Pyramid X?

- a. They would start eating the oak trees
- b. They would disappear from this particular model because there would not be enough biomass to support them
- c. They would become prey for the caterpillars
- d. They would be replaced by a smaller predator