SELF-QUIZ

The following icons indicate the Achievement Chart category addressed by each question.

K/U Knowledge/Understanding | T/I Thinking/Investigation | C Communication | A Application

For each question, select the best answer from the four alternatives.

1. Which of these spheres is made up of parts of the other three spheres? (2.1) K/U

   (a) atmosphere (c) hydrosphere
   (b) biosphere (d) lithosphere

2. Which of Canada's major biomes has the shortest growing season? (2.8) K/U

   (a) tundra (c) boreal forest
   (b) grassland (d) temperate deciduous forest

3. Which trophic level is made up of herbivores? (2.5) K/U

   (a) producers
   (b) primary consumers
   (c) secondary consumers
   (d) tertiary consumers

4. Which of the following is a key abiotic factor for aquatic ecosystems but not for terrestrial ecosystems? (2.9) K/U

   (a) light (c) salinity
   (b) nutrients (d) temperature

5. Which term applies to the relationship between two organisms of different species that live together, when both benefit from the relationship? (2.7) K/U

   (a) commensalism (c) mutualism
   (b) competition (d) predation

6. Which of these factors in a pond ecosystem is a biotic factor? (2.7, 2.9) K/U

   (a) bacteria (c) temperature
   (b) sediment (d) water

Indicate whether each of the statements is TRUE or FALSE. If you think the statement is false, rewrite it to make it true.

7. Artificial ecosystems, such as city parks and farm fields, are usually sustainable ecosystems. (2.2) K/U

8. Both matter and energy are recycled in an ecosystem. (2.4, 2.6) K/U

9. The Moon has no atmosphere because the force of its gravity is too weak. (2.1) K/U

Copy each of the following statements into your notebook. Fill in the blanks with a word or phrase that correctly completes the sentence.

10. Radiant energy from the Sun enters ecosystems through the process of _____ . (2.4) K/U

11. The word equation for cellular respiration shown here is incomplete.

    sugar + ? → carbon dioxide + water + energy

    The equation will be complete if the question mark is replaced by the word _____ . (2.4) K/U

12. The term population refers to all the individuals of the same _____ living in an ecosystem. (2.2) K/U

Match each term on the left with the most appropriate description on the right.

13. (a) carnivore (i) eats only plants
    (b) omnivore (ii) eats only animals
    (c) scavenger (iii) eats both plants and animals
    (d) herbivore (iv) eats remains of other organisms (2.5) K/U

Write a short answer to each of these questions.

14. Plants appeared on Earth long before animals. What abiotic factor did plants add to the environment that made animal life possible? (2.4) K/U

15. You are planning an overnight camping trip in the desert. (2.2) T/I

    (a) What are two biotic and two abiotic factors that you may encounter on your trip?
    (b) Describe equipment and supplies that will help you adapt to the factors you named in part (a).

16. Draw a diagram showing the path of energy through an ecosystem from solar radiation to producers to consumers and back to the environment. At each stage, identify the form the energy takes. (2.4, 2.5) C

17. A partial food web is shown below in Figure 1. The mice in this food web are infected by a disease that greatly reduces their population. (2.5) T/I

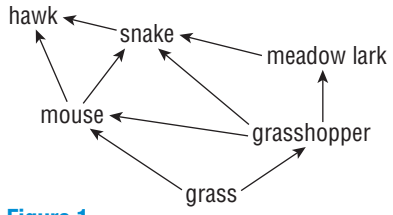

Figure 1

(a) How will the decrease in the mouse population affect the grasshopper population? Explain your answer.

(b) Considering your answer to part (a), how will the decrease in mouse population affect the meadow lark population? Explain your answer.

18. Imagine you have built a dam to create a small pond on your property. You want to create an artificial ecosystem by stocking the pond with two species of fish that occupy different trophic levels. What information would you need to gather about aquatic ecosystems before you buy the fish to put in your pond? (2.9) A

19. You want to study your personal role in the carbon cycle, as an organism that is part of that cycle. Copy and complete Table 1 below to show this information. (2.6) T/I

Table 1

Sources of carbon	Destinations of carbon	Where carbon goes next

20. A friend asks you why commercial fishing boats operate close to shorelines in relatively shallow waters, rather than in deep water or in the middle of the ocean. Explain to your friend why this is so. (2.9) C

21. Carbon, oxygen, and hydrogen are readily available to living organisms, but nitrogen is more difficult to obtain. Explain why this statement is true. (2.6) K/U T/I

22. Corn is a high-protein crop that requires large amounts of nitrogen in the soil to grow well. How might planting a legume, such as soybean, in the same field the previous year improve the growing conditions for corn? (2.6) T/I A

23. You are planning a study of the water cycle in the area where you live. You want to see how water moves from place to place and determine the factors that affect the relative amounts in each place. Describe how you would use data on the following factors, recorded over a ten-year period: (2.6) T/I

- annual precipitation
- temperatures
- levels of lakes, reservoirs, and the water table
- volume of water taken from various sources for home and commercial use.

24. For the survival of any species, several abiotic factors are required, each of which needs to be within an appropriate range. The optimum range for each factor is the range in which the species thrives best. For the human population on Earth, discuss the range of abiotic factors in which human life can survive. Consider the whole planet as our ecosystem. (2.7) T/I A

(a) How does the temperature range for human survival compare with the temperature range for survival of most animal species? Justify your answer.

(b) Select three abiotic factors required by humans, and describe the optimum range of each factor for human survival.

(c) Give examples of two groups of people who live near the edge of the survival range of two different abiotic factors.

25. You are planning a report on Ontario's two major biomes: boreal forest and temperate deciduous forest. You want to describe each biome in such a way that it cannot be confused with the other. (2.8) K/U A

(a) Identify two biotic factors that are unique to each biome.

(b) Identify two abiotic factors that are unique to each biome.

26. (a) Give an example of two organisms whose relationship is one of mutualism. Explain why the relationship is mutual.

(b) Give an example of two organisms whose relationship is one of commensalism. Explain why the relationship is commensal. (2.7) A