Dynamics of Ecosystems Review

1. Define each of the following terms.

   (a) Ecology

   (b) Species

   (c) Habitat

   (d) Population

   (e) Community

   (f) Ecosystem

   (g) Trophic Level

2. Explain what is meant by each of the following terms.

   (a) Autotroph

   (b) Heterotroph

   (c) Consumer

(d) Detrivoire

(e) Saprotroph

(f) Nitrogen fixation

3. Draw and label a diagram of the carbon cycle showing the processes involved (photosynthesis, cellular respiration, feeding, death, fossilization, and combustion).

4. Explain why farmers used to plant beans or clover in a field every so often instead of the regular crop.

5. Provide an example of how human activities can impact either the carbon or nitrogen cycle.

6. Provide an example of a natural occurrence that can impact the carbon cycle.

7. A substance must have certain properties before it could be considered hazardous to an ecosystem. What are these four properties?

8. What is the initial source of energy for almost all communities?

9. Describe what is meant by food chain.

10. Indicate the tropic level of each organism in the following food chain:

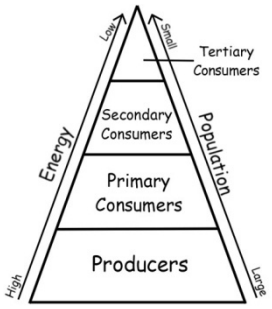
algae → mosquito larva → dragon fly larva → fish → raccoon

11. Construct a food web for Arctic tundra using the following information about the ecosystem.

- Cotton Sedges (a type of plant) is eaten by caribou, voles, ground squirrels, and bears
- caribou are eaten by wolves
- voles are eaten by wolves, owls, and hawks
- ground squirrels are eaten by wolves, owls, hawks, and grizzly bears

12. Explain how energy flows through a food chain.

13. A pyramid of energy shows the flow of energy from one trophic level to the next in a community.



Explain the shape of the pyramid.

14. Explain what is meant by the carrying capacity of an ecosystem.

15. List three factors that set limits to population increase.

16. State whether each of the following factors for population growth are density-dependent or density-independent and explain why.

    (a) fire

    (b) drought

    (c) food supply

    (d) mating opportunities

17. Explain how population size is affected by

    (a) natality

    (b) immigration

    (c) mortality

    (d) emigration

18. Sketch a graph showing population growth and label the exponential growth phase, the transitional phase, and the plateau phase.

19. Explain each phase of a population growth curve and provide a reason why it occurs.