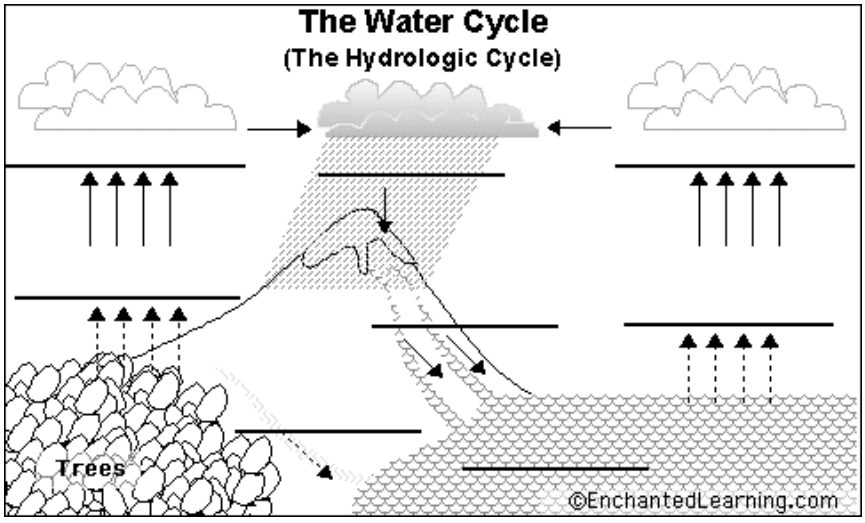
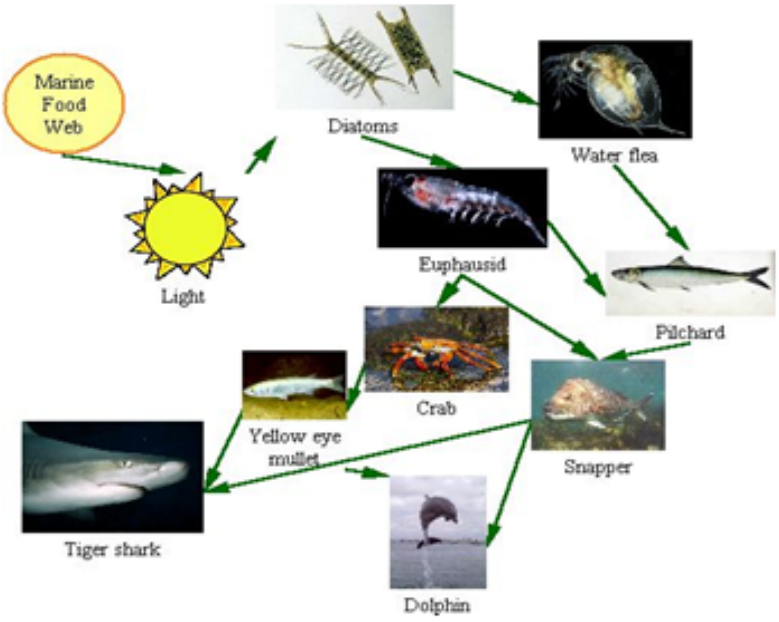
1. Which of the following is not a type of pollution?
    a. Water Pollution
    b. Noise Pollution
    c. Carbon Pollution
    d. Soil Pollution
    e. Radioactive Pollution
2. Describe the difference between thermal pollution and radioactive pollution.
3. Label the diagram below:



4. Describe the nitrogen cycle.
5. What element is added to kill microbes in potable water treatment facilities?
    a. Hydrogen
    b. Fluorine
    c. Helium
    d. Chlorine
6. _____ is the name for the type of pyramid that counts the number of organisms at each trophic level.
7. _____ is the name for the type of pyramid that calculates the mass of all organisms at each trophic level.
8. How much energy is lost in the transfer through trophic levels?
    a. 10%
    b. 50%
    c. 90%
    d. 0%
9. Define ecosystem.
10. Warm water holds ____ oxygen than cold water.
11. As temperature decreases, the metabolic rates of organisms _____.
12. Turbidity can be measured with a _____ disk, as well as a turbidimeter and nephelometer.
13. An increase in the decomposition of organic matter would _____ DO readings.
14. The largest source for DO in aquatic habitats is _____.
15. Turbidity measures the _____ of water.
16. Human wastes _____ BOD.
17. Define eutrophication.
18. _____ and _____ are the only two usable forms of nitrogen for living organisms.

19. What is Fecal Coliform?
20. Describe the process in which acid rain is formed.
21. Describe the process of desertification.
22. Clownfishes live amidst the tentacles of anemones, which protect them from predators. Describe the relationship between the two organisms.
    a. Commensalism
    b. Predation
    c. Mutualism
    d. Parasitism
    e. Neutral
23. Sloth hairs are grooved, which allows algae to easily take hold and grow on the sloth's fur. This camouflages the sloth and allows the algae to get closer to the sunlight. Describe the relationship between the two organisms.
    a. Commensalism
    b. Predation
    c. Mutualism
    d. Parasitism
    e. Competition
24. Using the diagram below, answer the following question: if the demand in the consumer market for crabs increases, describe the effects on the euphausid, yellow eye mullet, and tiger shark.



25. What is the difference between a keystone species and an indicator species?
26. Describe the problems associated with bycatch and bottom trawling.
27. In 1997, which international agreement did the United States fail to sign?
    a. Montreal Protocol
    b. Kyoto Protocol
    c. CITES
    d. CERCLA
    e. RCRA
28. Which of the following was not a law?
    a. Endangered Species Act of 1973
    b. Ocean Dumping Ban Act of 1988

c. Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947
d. Radioactive Material Control Act of 1995

29. Which of the following does not match?
    a. Rachel Carson, *Silent Spring*
    b. Al Gore, *An Inconvenient Truth*
    c. Henry David Thoreau, *Walden*
    d. Theodore Roosevelt, *The Nature of Things*
30. What is the Healthy Forest Initiative?
31. What are pollution permits?
32. What does it mean to describe ecosystems as "highly productive"?
33. Describe two pros and two cons of the Yucca Mountain nuclear waste repository.
34. Describe and give one example of each: lotic system, lentic system
35. What are the environmental advantages and disadvantages of GMOs? Give two of each.
36. If a city of population 10,000 experiences 100 births, 40 deaths, 10 immigrants, and 30 emigrants in the course of a year, what is its net annual percentage growth rate?
    a. 1.0%
    b. 0.1%
    c. 8.0%
    d. 0.8%
    e. None of the above.
37. Assume you use an air conditioner for a total of 137 days, 24 hours per day, at a rate of 7.25 kWh per hour. Assume the cost per kWh is $.0825 and 1 kWh = 3400 BTUs. What is the total number of kWh used per year?
38. The world's population in 2000 was approximately 6 billion. Assuming a constant growth rate of 2%, in what year would the world's population 12 billion?
    a. 2035
    b. 2050
    c. 2070
    d. 2100
    e. 4000
39. For a certain insecticide, the LD-50 dosage level for rats is determined to be 250 milligrams per kilogram of body mass. On the basis of this information, which of the following is the best prediction regarding the consequences of receiving this dosage of the insecticide?
    a. Fifty percent of any rat population would be sickened
    b. Fifty percent of the population of any warm-blooded animal would die
    c. Fifty percent of any population of mosquitoes would die
    d. Five hundred out of every one thousand people would experience acute effects
    e. Five hundred out of every one thousand rats would die
40. Plutonium-239 has a half life of 24,000 years. How much of the sample will remain after 96,000 years?
    a. 1 gram
    b. 0.5 grams
    c. 0.25 grams
    d. 0.125 grams
    e. 0.0625 grams

Practice Exam Aslesha Created

1. Which of the following are true?

I. Type I survivorship means most individuals die of old age.
II. Type II survivorship means individuals die at a constant rate.

III. Examples of Type II survivorship include fishes, invertebrates and plants.

A. I only
B. I & II
C. II & III
D. I, II, & III
E. None of the above

2. Refrigeration is costly in terms of energy usage. A single-door manual defrost refrigerator uses 600 kilowatt hours/year. A large 20 cubic ft two-door automatic defrost refrigerator uses 1880 kWh/yr. How many kcal/yr does each type of refrigerator use? (1kWh = 860 kcal)

3. Which of the following is the best example of an energy storage element in a solar energy system?
A. The photovoltaic array in a solar electric system
B. The overhang that blocks sunlight in a passively cooled home
C. The insulated windows in a passively heated solar home
D. The sun-tracking mirrors in a power tower system
E. The hot water tank in a solar hot water system

4. Which of the following is the correct order of soil particles in order of increasing size?

(A) Clay —sand—silt
(B) Clay—silt—sand
(C) Sand—clay—silt
(D) Sand—silt—clay
(E) Silt—clay—sand

5. Which of the following is used to reduce SO_2 emissions from coal-burning power plants?

(A) Catalytic converters
(B) Ultrafine mechanical filters
(C) Electrostatic precipitators
(D) Wet-scrubber units
(E) Afterburners

6. What are the four main categories of pollution?
7. What is the Safe Drinking Water Act?
8. What chemical is responsible for ozone depletion?

9. Which of the following is true of the Clean Air Act?

(A) It was passed by Congress during the early 1950s.
(B) It regulates the amount of CO_2 emitted by power plants.
(C) It has remained largely unmodified since it was originally signed into law.

(D) It established a cap-and-trade program for SO2 in 1990.
(E) It is set to expire in 2015.

10. Which of the following practices would have the biggest impact on achieving global sustainability?

(A) Recycling aluminum cans
(B) Using fuel-efficient vehicles
(C) Replanting deforested areas
(D) Reducing human population size
(E) Developing ecotourism venues

11. Which of the following elements is most likely to limit primary production in freshwater lakes?

(A) Oxygen
(B) Calcium
(C) Phosphorus
(D) Carbon
(E) Iron

12. Which of the following regions of the ocean is LEAST likely to contain photosynthetic organisms?

(A) Intertidal zone
(B) Zone of coastal upwelling
(C) Pelagic zone
(D) Euphotic zone
(E) Abyssal zone

13. What are the pros and cons of using renewable energy resources?

14. Define water diversion.

15. All of the following are commonly used to deal with the side effects of eutrophication in lakes EXCEPT

(A) applying herbicides to kill nuisance plants
(B) dredging out lakes to deepen them
(C) pumping oxygen into the lowest layers of water
(D) introducing insects that eat certain nuisance plants
(E) adding nitrates

16. What is biological treatment?

17. Which of the following best describes an effect of the Green Revolution in the 1960s?

(A) Increase in the varieties of each crop planted
(B) Increased use of fertilizers
(C) Decreased use of mechanization
(D) Decreased use of pesticides

18. Explain the causes of ocean dead zones.
19. Describe the carbon cycle.
20. Uranium-235 has a half-life of 710 million years. If it is determined that a certain amount of stored U-235 will be considered safe only when its radioactivity has dropped to 0.10 percent of the original level, approximately how much time must the U-235 be stored securely to be safe?
21. Define bioremediation.
22. What are three benefits of composting?
23. What are the consequences of overfishing?
24. Explain the theory of competitive exclusion.
25. What are three methods to remove pollutants from water? Explain how they work.
26. If a city of population 10,000 experiences 100 births, 40 deaths, 10 immigrants, and 30 emigrants in the course of a year, what is its net annual percentage growth?
27. _____ is an underground layer of porous rock that allows water to move smoothly.
28. _____ _____ occurs because nitrogen cannot be used directly by plants and must be converted to ammonia by bacteria first.
29. What is the differences between R strategists and K strategists?
30. _____ ____ _____ occurs in arid regions, when water evaporates and leaves salts behind.
31. What are three negative effects of nitrogen oxides in the environment?
32. _____ _____ is caused by sulfuric and nitric acids, resulting in lowered pH of surface waters.
33. What are the steps in coal formation?
34. Explain how thermal pollution occurs.
35. The dangers of disposing of toxic chemicals underground came to public attention in which of the following locations?

(A)Bhopal, India
(B)Chernobyl, Ukraine
(C)Love Canal, New York
(D)Minamata, Japan
(E)Three Mile Island, Pennsylvania

36. Which of the following greenhouse gases has the greatest heat- trapping ability per molecule?
    (A) Carbon dioxide
    (B) Carbon monoxide
    (C) Chlorofluorocarbon
    (D) Methane
    (E) Nitrous oxide
37. What are some common chemicals that pollute soil?
38. Explain the difference between a biomass pyramid and an energy pyramid.
39. What would happen in a food web if the population of decomposers dropped significantly?
40. What is solidification and stabilization?

Aslesha's Answer Key

1. B
2. 1,616,800 kcal/yr
3. A
4. E
5. D
6. industrial, residential, commercial, and environmental
7. The Safe Drinking Water Act is a law that has been effective since 1974 and assures that the public is provided safe drinking water. Federal standards are divided into six groups -- microorganisms, disinfectants, disinfectant byproducts, inorganic chemicals, organic chemicals and radionucleides.
8. Chlorofluorocarbons (CFC's)
9. D
10. B
11. E
12. E
13. Pros- clean, sustainable, encourages economic development
    Cons- depends on weather, can alter landscape, lower output of energy
14. A transfer of water across watershed boundaries through a man-made pipeline or canal
15. E
16. Process in which wastewater is treated with aerobic bacteria to remove or reduce contaminants
17. B
18. Eutrophication in rivers eventually pollutes oceans, causing ocean dead zones.
19. Carbon dioxide in the atmosphere is consumed by plants or sent into water. The carbon is transferred to other organisms and sent back to the atmosphere through respiration. Carbon dioxide in water is transferred to the earth in the form of limestone. Carbon in the earth can be combusted and returned to the atmosphere.
20. 7.1×10^9 years
21. using microbes to remove pollutants
22. soil conditioner, recycles kitchen and yard waste, introduces beneficial organisms to the soil, natural alternative to chemical fertilizers, reduces landfill waste
23. ecosystems destruction, economic impact, lack of biodiversity, ghost fishing pollution
24. ocean warming, ocean acidification, cyclones, sea level rise
25. adsorption- adhesion of atoms, ions or molecules from a liquid or gas
    electrodialysis- used to transport salt ions from one solution through ion-exchange membranes to another solution under the influence of an applied electric potential difference
    reverse osmosis- Mechanical pressure is applied to an impure solution to force pure water through a semi-permeable membrane. Reverse osmosis is theoretically the most thorough method of large scale water purification available, although perfect semi-permeable membranes are difficult to create
26.