Chapter 02 Test Bank KEY

1. Systems function in cycles and consist of _____ that increase a process or component, and _____ that diminish a process or component.

A. positive feedback; negative feedback
B. open system; closed system
C. throughput; threshold
D. positive feedback; open system
E. balance; inbalance

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.01
Topic: Science

2. A/An _____ is all forms of a single element that differs in atomic mass.

A. Isotope
B. Atom
C. Molecule
D. Element

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

3. As the hydrogen ion [H^+] concentration in a solution decreases, the hydroxide ion [OH^-] concentration

A. increases and the pH increases.
B. increases and the pH decreases.
C. decreases and the pH increases.
D. decreases and the pH decreases.
E. decreases and the pH stays the same.

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

4. Adding an acid to a solution _____ the pH, while adding a base _____ the pH.

A. decrease and neutralize.
B. increases and decreases.
C. neutralize and increases.
D. decreases and increase.
E. decreases and neutralize.

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

5. _____ is an example of something that has a basic pH.

A. Tomato Juice
B. Ammonia
C. Milk
D. Saliva
E. Coffee

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

6. The damage to an ecosystem caused by a hurricane or flood can be referred to as

A. An open system
B. An emergent property
C. Equilibrium in nature
D. A disturbance
E. Negative feedback loop

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.02
Topic: Science

7. The relationship among atoms, elements, and compounds is most like the relationship among which of the following groupings

A. bricks, brick houses, and large brick buildings.
B. grains of sand, rocks, and continents.
C. bricks, sidewalks, and paved roads.
D. ponds, lakes, and oceans.
E. grains of sugar, sugar, and sweetened iced tea.

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Bloom's Level: 3. Apply
Chapter: 02
Section: 02.02
Topic: Chemistry

8. Which of the following is not a molecule?

A. O_3

B. O_2
C. C
D. DNA
E. H_2O

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

9. Which of the following statements would change this into a true statement: "Most, but not all, living organisms are made up of organic compounds"?

A. All living organisms are made up of organic compounds.
B. All living organisms are made up of inorganic compounds.
C. Most, but not all, living organisms are made up of inorganic compounds.
D. Most, but not all, living organisms are made up of organic elements.
E. Most, but not all, living organisms are made up of inorganic elements.

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

10. Energy is the ability to

A. move objects.
B. become heated.
C. transfer heat from one object to another.
D. All of these are true.
E. Both move objects and transfer heat from one object to another are true.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.03
Topic: Energy

11. Potential energy is _____ energy.

A. electrical
B. motion
C. stored
D. heat
E. latent

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.03
Topic: Energy

12. The motion of a rock rolling downhill is known as _____ energy.

A. kinetic
B. latent
C. potential
D. electrical
E. mechanical

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.03
Topic: Energy

13. Metabolism can be seen as the process of converting

A. energy into matter.
B. potential energy into kinetic energy.
C. kinetic energy into potential energy.
D. atoms into compounds.
E. matter into potential energy.

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Bloom's Level: 3. Apply
Chapter: 02
Section: 02.03
Topic: Energy

14. The law of conservation of matter tells us that matter

A. can never be reused.
B. needs to be conserved or it will not be available for future generations.
C. can be destroyed.
D. can be conserved by some adaptive strategies.
E. is used repeatedly.

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

15. What implication(s) does the law of conservation of matter have for humans?

A. We cannot create energy because it is neither created nor destroyed.
B. As matter is recycled it loses some of its integrity so we need to be careful when we dispose of goods.
C. Natural resources are unlimited because they are used and reused by living organisms.
D. Disposable goods are not going "away" when we throw them out.
E. All of these are implications of the law of conservation of matter.

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.02
Topic: Chemistry

16. The first law of thermodynamics and the law of conservation of matter are similar in that

A. under normal circumstances neither energy nor matter is created nor destroyed.
B. both energy and matter are recycled through biological systems.
C. both energy and matter flow in a one-way path through biological systems.
D. under normal circumstances energy and matter are destroyed as they pass through biological systems.
E. The first law of thermodynamics and the law of conservation of matter are not similar.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.03
Topic: Energy

17. What implication(s) does the second law of thermodynamics have for biological systems?

A. Systems cannot create energy because energy is neither created nor destroyed.
B. With each transformation, less available energy is available to do work so older systems have less energy.
C. A constant supply of energy is necessary for maintenance of biological systems.
D. Energy is unlimited because it is used and reused by living organisms.
E. None of these is an implication of the second law of thermodynamics.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.03
Topic: Energy

18. Photosynthesis is the process of converting _____ into _____ energy.

A. chemical bond energy; kinetic
B. solar energy; chemical bond
C. solar energy; kinetic
D. solar electrical energy; heat
E. chemical bond energy; potential

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.04
Topic: Photosynthesis

19. Photosynthesis produces sugars from

A. water, carbon dioxide, and energy.
B. water, other sugars, and oxygen.
C. oxygen, carbon dioxide, and water.
D. carbon dioxide, enzymes, and energy.
E. oxygen, water, and energy.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.04
Topic: Photosynthesis

20. The process of photosynthesis and cellular respiration are similar in that they both

A. capture energy in the form of sugar.
B. occur in all living organisms.
C. temporarily store energy in chemical bonds.
D. capture energy from the sun.
E. none of these are correct.

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Bloom's Level: 2. Understand
Chapter: 02
Section: 02.04
Topic: Photosynthesis

21. The process of cellular respiration

A. helps primary producers store energy accumulated by chloroplasts.
B. releases energy from chemical bonds of molecules such as glucose.
C. eliminates the need for enzymes in metabolism.
D. does not occur in primary producers.
E. does not occur in detritivores.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.04
Topic: Cellular Respiration

22. All members of a species that live in the same area at the same time make up a(an)

A. species.
B. ecosystem.
C. community.
D. population.
E. biome.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.05
Topic: Populations

23. A biological community consists of all

A. populations living and interacting in an area.
B. members of a species living in the same area.
C. living things on Earth.
D. populations of a given species.
E. members of a species living in the same biome.

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.05
Topic: Communities

24. An ecosystem consists of

A. a physical environment within which a biological community lives.
B. the species with which a biological community interacts.
C. a biological community and its physical environment.
D. the primary producers within a biological community.
E. all the species in a biological community.

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.05
Topic: Ecosystems

25. The length and complexity of a food web in the Arctic would be _____ when compared to one in the tropical rainforest.

A. short and less complex
B. short and more complex
C. long and less complex
D. long and more complex
E. about the same

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Bloom's Level: 3. Apply
Chapter: 02
Section: 02.05
Topic: Trophic Levels

26. Producers rely on the process of _____ to release chemical energy and consumers rely on the process of _____ to release chemical energy.

A. cellular respiration; photosynthesis
B. cellular respiration; cellular respiration
C. photosynthesis; cellular respiration
D. photosynthesis; photosynthesis
E. the sun; the sun

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Section: 02.05
Topic: Trophic Levels

27. Primary consumers are also known as

A. carnivores.
B. scavengers.
C. decomposers.
D. herbivores.
E. top carnivores

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.05
Topic: Trophic Levels

28. Energy enters a system as sunlight and a producer is able to produce 10 kilograms of tissue. If eaten, the producer would produce about _____ kilograms of consumer tissue that would provide about _____ kilograms of tissue for a secondary consumer.

A. 100; 10
B. 10; 1
C. 100; 1
D. 1; 0.1
E. 10; 0.1

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Section: 02.05
Topic: Trophic Levels

29. Living plants and the ocean are known as "carbon sinks" because

A. they are made of carbon.
B. they create carbon.
C. they destroy carbon.
D. they store carbon.
E. due to gravity, carbon is found closer to the ground.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Section: 02.06
Topic: Biogeochemical Cycles

30. _____ are characteristics of an entire system that are greater than the sum of its parts.

A. Open systems
B. Closed systems
C. Disturbances
D. Emergent properties
E. Feedback loops

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.01
Topic: Ecosystems

31. Which is the best example of a closed system?

A. a space station
B. a forest
C. a hotel
D. a lake
E. a river

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Section: 02.01
Topic: Ecosystems

32. Which is not a characteristic of acids?

A. they readily give up hydrogen ions
B. they have a pH of less than 7
C. they react easily with living tissue
D. they react easily with nonliving minerals
E. all of these are characteristic of acids

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: 02.02
Topic: Chemistry

33. How do the organisms living around Yellowstone's hot springs get energy?

A. by eating alga
B. from the heat in the hot spring
C. from photosynthesis
D. from chemosynthesis
E. no organisms can live at the depths of black smokers

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.04
Topic: Energy

34. Nitrogen is an essential component of amino acids and proteins.

TRUE

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Bloom's Level: 1. Remember
Chapter: 02
Section: 02.02
Topic: Chemistry

35. Photosynthesis is a step in the global nitrogen cycle.

FALSE

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Section: 02.04
Topic: Photosynthesis

36. Water expands when it crystallizes and freezes.

TRUE

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02
Section: A Water Planet
Topic: Properties of Water

37. Based on what you know of photosynthesis, what effect would clearcutting of large forests have on the amount of carbon dioxide in the atmosphere?

A. It would increase the level of carbon dioxide since less photosynthesis would be taking place.
B. The amount of carbon dioxide would be decreased since the trees would no longer be living.
C. There would be no change in carbon dioxide levels since humans put carbon dioxide into the atmosphere by burning fossil fuels.
D. The amount of carbon dioxide would be the same since the reaction rates of photosynthesis and respiration are equal.

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Bloom's Level: 5. Evaluate
Chapter: 02
Section: 02.04
Topic: Photosynthesis

38. If you were to remove the top predator in a food web or food chain

A. there would be an increase in the number of producers.
B. the producer population will be depleted because there are more primary consumers or herbivores.
C. another predator would move in and take its place as top predator.
D. there would be no change in the exchange of energy since predators get very little (only 10%) of the energy from their food source.

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Section: 02.05
Topic: Trophic Levels

39. Which biogeochemical cycle lacks an atmospheric component?

A. The hydrologic cycle.
B. The carbon cycle.
C. The nitrogen cycle.
D. The phosphorous cycle.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02
Section: 02.06
Topic: Biogeochemical Cycles

40. Water supplies contaminated with algae that produce toxins making the water unfit to drink is a result of the human impact to the

A. hydrologic cycle.
B. carbon cycle.
C. nitrogen cycle.
D. sulfur cycle.

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02
Section: 02.06
Topic: Biogeochemical Cycles

41. The amount of biomass that is produced in an area during a given time would be referred to as

A. production.
B. nutrient load.
C. chemosynthesis.
D. productivity.

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Section: 02.05
Topic: Trophic Levels

42. Organisms that live in deep sea ocean vents use chemicals rather than sunlight to drive the energy producing reactions. These organisms undergo what process?

A. Photosynthesis
B. Biosynthesis
C. Accumulation
D. Chemosynthesis

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Section: 02.04
Topic: Photosynthesis

43. Humans alter the sulfur cycle by

A. burning fossil fuels.
B. mining rock.
C. applying too much fertilizer to crop fields.
D. clear cutting tropical forests.

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Section: 02.06
Topic: Biogeochemical Cycles

Chapter 02 Test Bank Summary

Category

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Bloom's Level: 2. Understand
Bloom's Level: 3. Apply
Bloom's Level: 5. Evaluate
Chapter: 02
Section: A Water Planet
Section: 02.01
Section: 02.02
Section: 02.03
Section: 02.04
Section: 02.05
Section: 02.06
Topic: Biogeochemical Cycles
Topic: Cellular Respiration
Topic: Chemistry
Topic: Communities
Topic: Ecosystems
Topic: Energy
Topic: Photosynthesis
Topic: Populations
Topic: Properties of Water
Topic: Trophic Levels
Topic: Science