1. The brown paper test for lipids is positive when food is placed on the paper and a spot forms which will allow light to pass through it. Which food would give the ***strongest*** positive test for lipids?

   A potato chips

   B bread

   C sugar

   D carrots

2. What is the function of a cell's selectively permeable membrane?

   A to regulate energy production in the cell

   B to keep mitochondria from using nuclear material

   C to maintain a constant lipid-protein ratio in the cell

   D to control materials entering and leaving the cell

3. While observing an *Elodea* plant cell through a microscope, a student noticed some small, moving green disks. These organelles were ***most likely*** which of the following?

   A chloroplasts

   B leucoplasts

   C mitochondria

   D ribosomes

4. At which organelle are proteins manufactured?

   A mitochondrion

   B nucleus

   C ribosome

   D vacuole

5. A student examines a cell under the microscope and determines that it is a eukaryote. Which structure did the student identify in order to come to this conclusion?

   A vacuole

   B nucleus

   C cell wall

   D ribosome

6. The major difference between prokaryotic and eukaryotic cells is the presence or absence of which of the following?

   A membrane-bound organelles

   B cytoplasm

   C a cell membrane

   D nucleic acids

7. Which of the following is found only in eukaryotic cells?

   A cell membrane

   B cytoplasm

   C DNA

   D mitochondria

8. A plant has been removed from its natural environment and placed into a body of water that contains more salt than the inside of each plant cell. This situation is ***most similar*** to which of the following events?

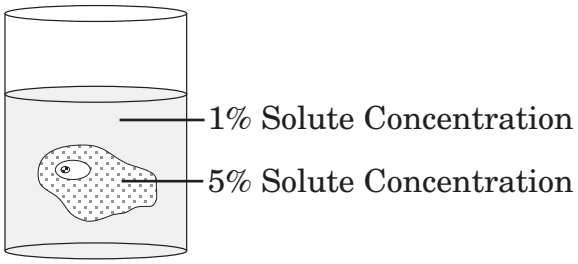
   A a sea plant put into fresh water

   B a freshwater plant put into sea water

   C a sea plant put into distilled water

   D a land plant put into tap water

9. A cell with 5% solute concentration is placed in a beaker with a 1% solute concentration.



   What will happen to the cell over time?

   A The cell will gain H_2O and expand.

   B The cell will lose H_2O and shrink.

   C The cell will both gain and lose equal amounts of H_2O; thus, it will remain the same size.

   D The cell will undergo no exchange of H_2O with its surroundings.

10. While cleaning a saltwater aquarium, students placed the aquarium plants in a container of distilled water. What effect will this have on the plants?

   A The plant cells will separate.

   B The plant cells will shrink.

   C The plant cells will swell.

   D The plant cells will remain the same.

11. What would happen to a marine protozoan if removed from its normal habitat and placed into a freshwater pool?

A loss of water through osmosis

B loss of water through active transport

C gain of water through osmosis

D gain of water through active transport

12. What regulates the flow of water through a cell membrane?

A the concentration of solutes

B the absence of a cell wall

C the thickness of the membrane

D the presence of the cell wall

13. Which of the following statements concerning diffusion and active transport is correct?

A Both diffusion and active transport require cell energy.

B Neither diffusion nor active transport requires cell energy.

C Diffusion requires cell energy while active transport does not.

D Active transport requires cell energy while diffusion does not.

14. In the lungs, the movement of carbon dioxide out of cells and oxygen into cells can ***best*** be explained by which of the following processes?

A active transport

B diffusion

C endocytosis

D osmosis

15. Why do most enzymes not function properly after being exposed to high temperatures?

A They have been converted to tripeptides.

B Their water content has been reduced.

C Their bonding structure has been changed.

D They have combined with another enzyme.

16. Cellular respiration is carried out by which of the following?

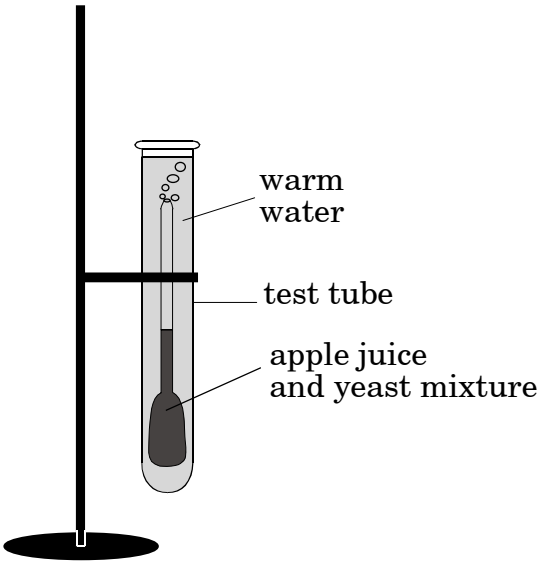
A all living organisms all of the time

B animals but not plants

C animals all of the time but plants only at night

D heterotrophs but not autotrophs

17. Two students set up the following apparatus in a lab. A pipette was filled with a mixture of yeast and apple juice and inverted in a test tube filled with warm water. The students observed bubbles being released from the end of the pipette.



Which of the following ***most likely*** represents the gas being released?

A carbon dioxide

B hydrogen peroxide

C oxygen

D nitrogen

18. Which of the following processes releases the ***most*** ATP per molecule of glucose for immediate cell use?

A aerobic respiration

B anaerobic respiration

C chemosynthesis

D photosynthesis

End of Goal 1 Sample Items

Answers to EOC Biology Sample Items

Goal 1

1. **Objective 1.01**
   Analyze the matter-energy relationships of living and non-living things including: Chemical processes and regulatory mechanisms of cells; Bonding patterns; Energy use and release in biochemical reactions
   Thinking Skill: Organizing **Correct Answer:** A

2. **Objective 1.02**
   Describe the structure and function of cell organelles.
   Thinking Skill: Knowledge **Correct Answer:** D

3. **Objective 1.02**
   Describe the structure and function of cell organelles.
   Thinking Skill: Knowledge **Correct Answer:** A

4. **Objective 1.02**
   Describe the structure and function of cell organelles.
   Thinking Skill: Knowledge **Correct Answer:** C

5. **Objective 1.03**
   Compare and contrast the structure and function of prokaryotic and eukaryotic cells.
   Thinking Skill: Knowledge **Correct Answer:** B

6. **Objective 1.03**
   Compare and contrast the structure and function of prokaryotic and eukaryotic cells.
   Thinking Skill: Knowledge **Correct Answer:** A

7. **Objective 1.03**
   Compare and contrast the structure and function of prokaryotic and eukaryotic cells.
   Thinking Skill: Knowledge **Correct Answer:** D

8. **Objective 1.04**
   Assess and explain the importance of water to cells, as well as, transport into and out of cells.
   Thinking Skill: Integrating **Correct Answer:** B

Goal 1

9. Objective 1.04
Assess and explain the importance of water to cells, as well as, transport into and out of cells.
Thinking Skill: Analyzing **Correct Answer:** A

10. Objective 1.04
Assess and explain the importance of water to cells, as well as, transport into and out of cells.
Thinking Skill: Generating **Correct Answer:** C

11. Objective 1.04
Assess and explain the importance of water to cells, as well as, transport into and out of cells.
Thinking Skill: Generating **Correct Answer:** C

12. Objective 1.04
Assess and explain the importance of water to cells, as well as, transport into and out of cells.
Thinking Skill: Analyzing **Correct Answer:** A

13. Objective 1.04
Assess and explain the importance of water to cells, as well as, transport into and out of cells.
Thinking Skill: Integrating **Correct Answer:** D

14. Objective 1.04
Assess and explain the importance of water to cells, as well as, transport into and out of cells.
Thinking Skill: Knowledge **Correct Answer:** B

15. Objective 1.05
Describe the structure and function of enzymes and explain their importance in biological systems.
Thinking Skill: Evaluating **Correct Answer:** C

16. Objective 1.06
Analyze the bioenergetic reactions: Aerobic respiration; Anaerobic Respiration; Photosynthesis; Chemosynthesis
Thinking Skill: Integrating **Correct Answer:** A

Goal 1

17. Objective 1.06
Analyze the bioenergetic reactions: Aerobic respiration; Anaerobic Respiration; Photosynthesis; Chemosynthesis
Thinking Skill: Analyzing **Correct Answer:** A

18. Objective 1.06
Analyze the bioenergetic reactions: Aerobic respiration; Anaerobic Respiration; Photosynthesis; Chemosynthesis
Thinking Skill: Knowledge **Correct Answer:** A