Respiration Take-Home Quiz

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- 1. When cells break down food molecules, energy
 - is released all at once. a.
 - b. is released entirely as body heat into the environment.
 - is temporarily stored in ATP molecules. c.
 - causes excitation of electrons in chlorophyll molecules. d.
- 2. ATP
 - contains five phosphate groups. a.
 - is essential for a cell to perform all the tasks necessary for life. b.
 - is found only in bacteria. c.
 - d. All of the above
- 3. A substance produced during photosynthesis that is used for completion of cellular respiration is
 - water. c. NADPH. a.
 - ATP. b. d. oxygen.
- 4. The process of cellular respiration
 - a. is performed only by organisms that are incapable of photosynthesis.
 - breaks down food molecules to release stored energy. b.
 - occurs before plants are able to carry out photosynthesis. c.
 - occurs only in animals. d.
 - 5. When glycolysis occurs,
 - a molecule of glucose is split. a.
 - two molecules of pyruvic acid are made. b.
 - c. some ATP is produced.
 - All of the above d.

b.

- 6. The name of the process that takes place when organic compounds are broken down in the absence of oxygen is
 - a. respiration. c. fermentation. oxidation.
 - d. All of the above
- 7. When muscles are exercised extensively in the absence of sufficient oxygen,
 - a large amount of ATP is formed. a.
 - NADH molecules split. b.
 - lactic acid is produced. c.
 - cellular respiration ceases. d.
 - 8. You have been growing some animal cells in culture. The cells grow well for several weeks, and then their growth slows down. You conduct some tests and determine that there is a lot of lactic acid in the culture fluid. Which of the following is the most likely explanation for the poor growth of the cells?
 - a. There is too much glucose in the culture fluid.
 - There is not enough glucose in the culture fluid. b.
 - There is too much oxygen in the culture fluid. c.
 - d. There is not enough oxygen in the culture fluid.

- 9. Cellular respiration takes place in two stages:
 - a. glycolysis and fermentation.
 - b. Stage 1 and Stage 2 of photosynthesis.
 - c. glycolysis, then aerobic respiration.
 - aerobic respiration, then glycolysis. d.
- 10. In cellular respiration, a two-carbon molecule combines with a four-carbon molecule to form citric acid as part of
 - a. glycolysis.
 - b. carbon fixation.
 - the Krebs cycle. c.
 - d. the electron transport chain.
- 11. Acetyl coenzyme A
 - is formed from the breakdown of pyruvic acid. a.
 - enters the Krebs cycle. b.
 - can be used in synthesis of needed molecules. c.
 - d. All of the above
- 12. Glycolysis and aerobic respiration are different in that
 - glycolysis occurs on the cell membrane, while aerobic respiration occurs in a. mitochondria.
 - glycolysis occurs only in photosynthesis, while aerobic respiration is part of cellular b. respiration.
 - glycolysis occurs in the absence of oxygen, while aerobic respiration requires c. oxygen.
 - There is no difference; these terms are different names for the same process. d.
- 13. Which of the following is *not* formed during the Krebs cycle?
 - CO_2 c. NADH a.
 - FADH₂ d. NADPH b.
- 14. Which of the following is *not* part of cellular respiration?
 - electron transport c. the Krebs cycle a.
 - b. glycolysis d. the Calvin cycle
- 15. With oxygen present, the Krebs cycle and the electron transport chain
 - provide organisms an alternative to glycolysis. a.
 - produce most of the ATP needed for life. b.
 - break down glucose to produce carbon dioxide, water, and ATP. c.
 - All of the above d.
 - 16. Water is an end product in
 - lactic acid formation. a. the Krebs cycle. с.
 - fermentation. the electron transport chain. b. d.
 - 17. ATP molecules produced during aerobic respiration
 - remain in the mitochondria in which they are formed. a.
 - are stored in chloroplasts of the same cell in which they are formed. b.
 - c. enter the cell's cytoplasm through the membranes of the mitochondria in which they are formed.
 - are distributed by the bloodstream to all cells in the body. d.

- 18. At the end of the electron transport chain,
 - a. the electrons combine with oxygen and protons to form water.
 - the electrons are used in the formation of ethyl alcohol. b.
 - c. the electrons build up inside the mitochondria and diffuse back to a thylakoid.
 - d. None of the above

 $C_6 H_{12}O_6 + 6O_2 + ADP + P \rightarrow 6CO_2 + 6 H_2O + MOLECULE A$

19. The process shown in the equation above begins in the cytoplasm of a cell and ends in the

- c. endoplasmic reticulum. a. cytoplasm.
- b. mitochondria. d. lysosome.
- 20. The equation above summarizes the process known as
 - a. photosynthesis.
 - b. fermentation.
- 21. The molecule referred to as "molecule A" in the equation above is
 - NADPH. a.
 - ATP. d. ADP. b.
- 22. When living cells break down molecules, energy is
 - stored as ADP. c. released as heat. a.
 - stored as ATP. d. Both b and c b.
- 23. In cellular respiration, the most energy is transferred during
 - glycolysis. a.
 - b. lactic acid fermentation.
 - the Krebs cycle. c.
 - d. the electron transport chain
 - 24. Electrons are donated to the electron transport chain by
 - ATP and NADH. a.
 - b. FADH₂ and NADH.
- c. ATP and NAD⁺.
- d. NAD⁺ and ATP.

- c. cellular respiration.
 - d. protein breakdown.

 - - c. NADH.