Name: _____ Class: _____ Date: _____ ID: A

Photosynthesis and Cellular Respiration PRACTICE TEST

Multiple Choice

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

____ 1. Organisms, such as plants, that make their own food are called
a. autotrophs.
b. heterotrophs.
c. thylakoids.
d. pigments.

____ 2. Organisms that cannot make their own food and must obtain energy from the foods they eat are called
a. autotrophs.
b. heterotrophs.
c. thylakoids.
d. plants.

____ 3. What are the three parts of an ATP molecule?
a. adenine, thylakoids, stroma
b. stroma, grana, chlorophyll
c. adenine, ribose, phosphate groups
d. NADH, NADPH, and $FADH_2$

____ 4. Energy is released from ATP when
a. a phosphate group is added.
b. adenine bonds to ribose.
c. ATP is exposed to sunlight.
d. a phosphate group is removed.

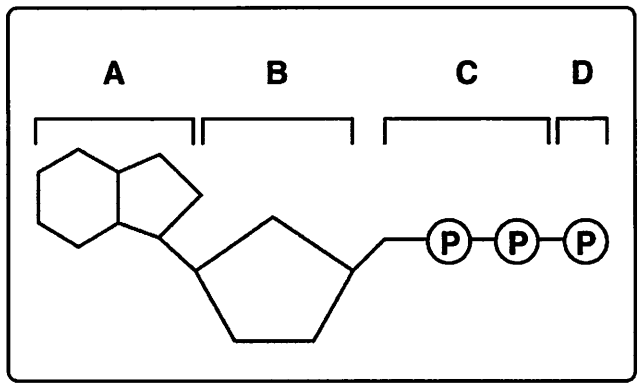

Figure 8–1

____ 5. Look at Figure 8–1. All of the following are parts of an ADP molecule EXCEPT
a. structure A.
b. structure B.
c. structure C.
d. structure D.

____ 6. Jan van Helmont concluded that plants gain most of their mass from
a. water.
b. the soil.
c. carbon dioxide in the air.
d. oxygen in the air.

____ 7. A student is collecting the gas given off from a plant in bright sunlight at a temperature of 27°C. The gas being collected is probably
a. oxygen.
b. carbon dioxide.
c. ATP.
d. vaporized water.

____ 8. Photosynthesis uses sunlight to convert water and carbon dioxide into
a. oxygen.
b. high-energy sugars and starches.
c. ATP and oxygen.
d. oxygen and high-energy sugars and starches.

____ 9. Which of the following is(are) used in the overall reactions for photosynthesis?
a. carbon dioxide
b. water
c. light
d. all of the above

____ 10. Plants take in the sun's energy by absorbing
a. high-energy sugars.
b. chlorophyll *a*.
c. chlorophyll *b*.
d. sunlight.

____ 11. Most plants appear green because chlorophyll
a. does not absorb green light.
b. reflects violet light.
c. absorbs green light.
d. none of the above

____ 12. A granum is a
a. stack of chloroplasts.
b. stack of thylakoids.
c. membrane enclosing a thylakoid.
d. photosynthetic pigment molecule.

____ 13. The stroma is the region outside the
a. thylakoids.
b. chloroplasts.
c. plant cells.
d. all of the above

____ 14. Where in the chloroplast is chlorophyll found?
a. in the stroma
b. in the thylakoid
c. in the ATP
d. in the glucose

____ 15. Where do the light-dependent reactions take place?
a. in the stroma
b. in the mitochondria
c. within the thylakoid membranes
d. only in chlorophyll molecules

____ 16. What are the products of the light-dependent reactions?
a. oxygen gas
b. ATP
c. NADPH
d. all of the above

____ 17. Where are photosystems I and II found?
a. in the stroma
b. in the thylakoid membrane
c. in the Calvin cycle
d. all of the above

____ 18. The Calvin cycle is another name for
a. light-independent reactions.
b. light-dependent reactions.
c. photosynthesis.
d. all of the above

____ 19. The Calvin cycle takes place in the
a. stroma.
b. photosystems.
c. thylakoid membranes.
d. chlorophyll molecules.

____ 20. What is a product of the Calvin cycle?
a. oxygen gas
b. ATP
c. high-energy sugars
d. carbon dioxide gas

____ 21. If carbon dioxide is completely removed from a plant's environment, what would you expect to happen to the plant's production of high-energy sugars?
a. More sugars will be produced.
b. No sugars will be produced.
c. The same number of sugars will be produced but without carbon dioxide.
d. Carbon dioxide does not affect the production of high-energy sugars in plants.

____ 22. Which of the following is released during cellular respiration?
a. oxygen
b. air
c. energy
d. lactic acid

____ 23. What is the correct equation for cellular respiration?
a. $6O_2 + C_6H_{12}O_6 \rightarrow 6CO_2 + 6H_2O + \text{Energy}$
b. $6O_2 + C_6H_{12}O_6 + \text{Energy} \rightarrow 6CO_2 + 6H_2O$
c. $6CO_2 + 6H_2O \rightarrow 6O_2 + C_6H_{12}O_6 + \text{Energy}$
d. $6CO_2 + 6H_2O + \text{Energy} \rightarrow 6O_2 + C_6H_{12}O_6$

____ 24. Cellular respiration releases energy by breaking down
a. food molecules.
b. ATP.
c. carbon dioxide.
d. water.

____ 25. What are the reactants in the equation for cellular respiration?
a. oxygen and lactic acid
b. carbon dioxide and water
c. glucose and oxygen
d. water and glucose

____ 26. Which of these is a product of cellular respiration?
a. oxygen
b. water
c. glucose
d. all of the above

____ 27. Glycolysis provides a cell with a net gain of
a. 2 ATP molecules.
b. 4 ATP molecules.
c. 18 ATP molecules.
d. 36 ATP molecules.

____ 28. Glycolysis requires
a. an energy input.
b. oxygen.
c. hours to produce many ATP molecules.
d. $NADP^+$.

____ 29. Lactic acid fermentation occurs in
a. bread dough.
b. any environment containing oxygen.
c. muscle cells.
d. mitochondria.

____ 30. The two main types of fermentation are called
a. alcoholic and aerobic.
b. aerobic and anaerobic.
c. alcoholic and lactic acid.
d. lactic acid and anaerobic.

____ 31. One cause of muscle soreness is
a. alcoholic fermentation.
b. glycolysis.
c. lactic acid fermentation.
d. the Krebs cycle.

____ 32. The air bubbles and spongy texture of bread are due to which process?
a. lactic acid fermentation
b. glycolysis
c. alcoholic fermentation
d. the Krebs cycle

____ 33. Milk is converted to yogurt under certain conditions when the microorganisms in the milk produce acid. Which of these processes would you expect to be key in the production of yogurt?
a. the Krebs cycle
b. photosynthesis
c. alcoholic fermentation
d. lactic acid fermentation

____ 34. Cellular respiration is called an aerobic process because it requires
a. light.
b. exercise.
c. oxygen.
d. glucose.

____ 35. Breathing heavily after running a race is your body's way of
a. making more citric acid.
b. repaying an oxygen debt.
c. restarting glycolysis.
d. recharging the electron transport chain.

____ 36. When the body needs to exercise for longer than 90 seconds, it generates ATP by carrying out
a. lactic acid fermentation.
b. alcoholic fermentation.
c. cellular respiration.
d. glycolysis.

____ 37. All of the following are sources of energy during exercise EXCEPT
a. stored ATP.
b. alcoholic fermentation.
c. lactic acid fermentation.
d. cellular respiration.

____ 38. Which process does NOT release energy from glucose?
a. glycolysis
b. photosynthesis
c. fermentation
d. cellular respiration

____ 39. How are cellular respiration and photosynthesis almost opposite processes?
a. Photosynthesis releases energy, and cellular respiration stores energy.
b. Photosynthesis removes carbon dioxide from the atmosphere, and cellular respiration puts it back.
c. Photosynthesis removes oxygen from the atmosphere, and cellular respiration puts it back.
d. all of the above

____ 40. Photosynthesis is to chloroplasts as cellular respiration is to
a. chloroplasts.
b. cytoplasm.
c. mitochondria.
d. nuclei.