Bio.12-Q1W6- H.W.-Cyto- Cell Energy -

Completion
Complete each statement.

A. electron transport chain
B. photolysis
C. photosynthesis
D. Calvin cycle
E. citric acid cycle
F. glycolysis
G. light reactions

1. The process by which autotrophs use energy from sunlight to build carbohydrates is called _____.
2. The passing of electrons along a series of molecules, releasing energy as they go, is known as a(n) _____.
3. A series of reactions in aerobic respiration that begins and ends with the same 6-carbon compound is the _____.
4. The reactions in photosynthesis in which energy from the sun is converted to chemical energy are called _____.
5. The splitting of water during photosynthesis is _____.
6. The anaerobic process of splitting glucose to form pyruvic acid is called _____.
7. In photosynthesis, the series of reactions that synthesize simple sugars from carbon dioxide and hydrogen is known as the _____.

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

____ 8. In respiration, the final electron acceptor in the electron transport chain is _____.
a. oxygen
b. ATP
c. H_2O
d. hydrogen ions

____ 9. In which types of organisms does the process shown in Figure 9-5 take place?

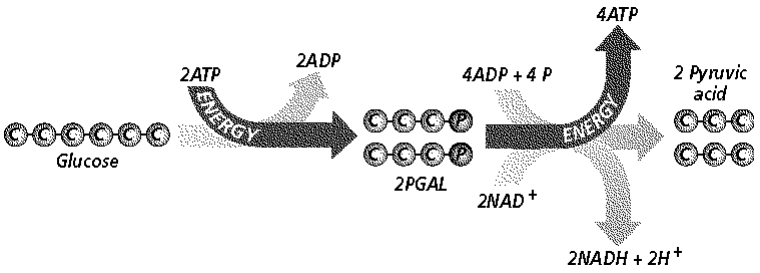

Figure 9-5

a. plants only
b. animals only
c. neither plants nor animals
d. both plants and animals

____ 10. What is the main purpose of the cycle shown in Figure 9-4?

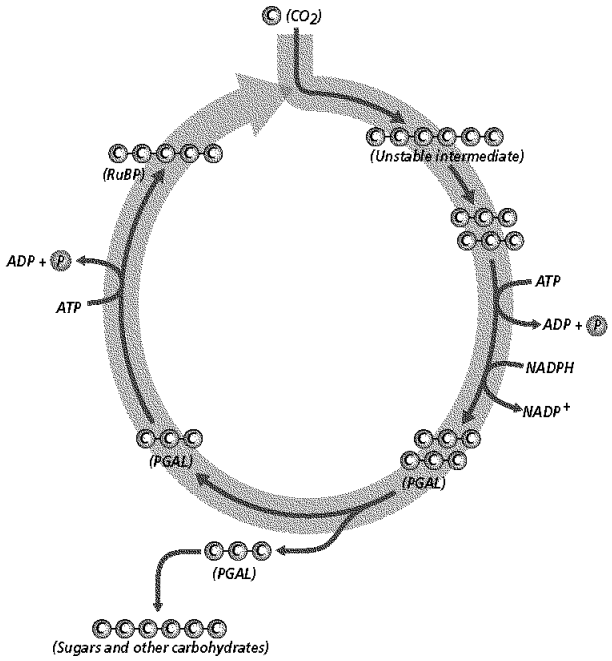

Figure 9-4

a. destruction of CO_2
b. production of ADP
c. sugar production
d. production of $NADP^-$

____ 11. Which of the processes shown in Figure 9-3 do not use a cell's energy?

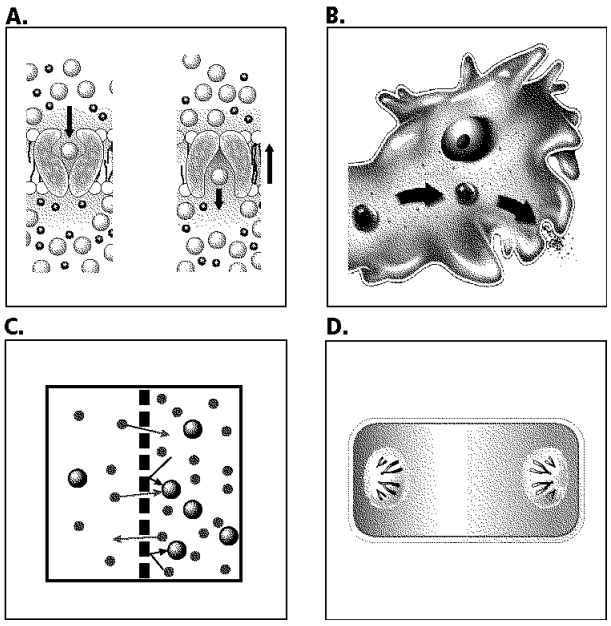

Figure 9-3

a. C
b. D
c. A
d. B

____ 12. Cells store energy when _____.
a. a third phosphate group is bonded to an ATP molecule
b. they break down sucrose to glucose and fructose
c. the third phosphate group breaks off from an ATP molecule
d. ions are released into the bloodstream

____ 13. Chlorophyll is the primary pigment in plant chloroplasts. It absorbs all wavelengths of light, EXCEPT —
a. yellow.
b. green.
c. red.
d. All of the above

____ 14. In glycolysis, _____ molecules of ATP are used in the first step, and _____ molecules of ATP are produced in the second step.
a. two, four
b. four, two
c. two, two
d. four, four

____ 15. The Calvin cycle produces a molecule that is able to reenter the cycle as a reactant. Which of the following molecules is used as a reactant in the beginning of the Calvin cycle and is then produced at the end?
a. ATP
b. Phosphoglyceric acid
c. Carbon dioxide
d. Ribulose biphosphate

____ 16. Kidneys use energy to move molecules and ions in order to keep the blood chemically balanced. This process is an example of cells using energy to _____.
a. control body temperature
b. carry on chemosynthesis
c. transmit impulses
d. maintain homeostasis

____ 17. Where is the electron transport chain located in the light-dependent reactions?
a. Mitochondria
b. Cytoplasm
c. Nucleus
d. Thylakoid membrane

____ 18. In the absence of oxygen, yeast cells undergo fermentation to produce —
a. oxygen.
b. glucose.
c. lactic acid.
d. ethyl alcohol.

____ 19. Leaves appear green because the green portion of the light that strikes them is _____.
a. absorbed
b. destroyed
c. changed to heat
d. reflected

____ 20. Which of the following is <u>not</u> a part of adenosine diphosphate?
a. glucose
b. adenine
c. two phosphate groups
d. ribose

____ 21. Which of the following equations best represents photosynthesis?
a. $C + O_2 + H_2O \rightarrow CO_2 + HOH$
b. $6C + 6H_2O \rightarrow C_6H_{12}O_6$
c. $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
d. $C_6H_{12}O_6 \rightarrow 6CO_2 + 6H_2O$

____ 22. In order to move molecules in your kidneys, your body needs _____.
a. energy
b. cold
c. heat
d. sunlight

____ 23. A green pigment that traps energy from sunlight is _____.
a. thylakoid membranes
b. ATP
c. carotenoid
d. chlorophyll

____ 24. ATP stores energy for use in several cellular functions. Which of the following does NOT require the breakdown of ATP?
a. Enzyme production
b. Flagella movement
c. Bioluminescence
d. Diffusion

____ 25. Which of the following is NOT part of a molecule of ATP?
a. Phosphate group
b. Deoxyribose sugar
c. Adenosine
d. Ribose sugar

____ 26. Energy from sunlight is trapped by chlorophyll located in the _____.
a. electron transport chain
b. citric acid cycle
c. mitochondria
d. thylakoid membranes

____ 27. Chlorophyll traps _____ from sunlight.
a. glucose
b. hydrogen
c. oxygen
d. energy

____ 28. Which of the following processes is anaerobic?
a. Citric acid cycle
b. Electron transport chain
c. Glycolysis
d. All of the above

____ 29. Which of the following is a product of photosynthesis?
a. ATP
b. Carbon dioxide
c. Glucose
d. Water

____ 30. In the complete process of photosynthesis, the _____.
a. light reactions produce $NADP^+$ from $NADPH + H^+$
b. Calvin cycle breaks down H_2O
c. light reactions release oxygen
d. Calvin cycle yields CO_2

____ 31. Organisms need a way of storing energy because _____.
a. a cell cannot create energy and must get it from elsewhere in the organism
b. a cell can release only stored energy
c. an organism often has times when no energy is used
d. a cell can't always immediately use all the energy it gets

____ 32. The main energy-trapping molecule in plants is _____.
a. stroma
b. carotenoids
c. chloroplast
d. chlorophyll

____ 33. Where do the light-independent reactions of photosynthesis take place?
a. Stroma
b. Mitochondria
c. Cell wall
d. Thylakoid membrane

____ 34. Which of the following is a reactant in photolysis?
a. Water
b. Electron
c. Oxygen
d. Proton

____ 35. Which of the diagrams in Figure 9-2 best show how energy is produced in a cell?

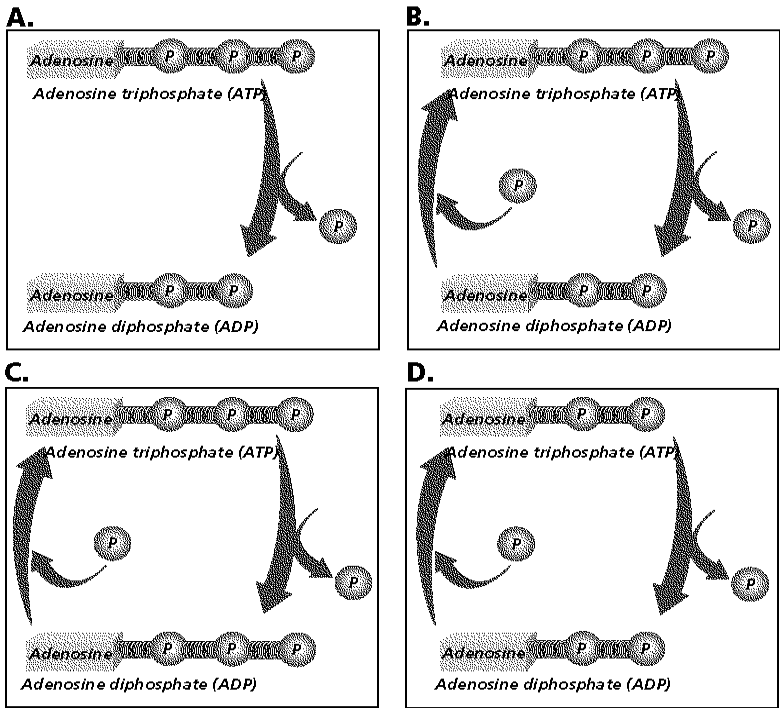

Figure 9-2

a. D
b. B
c. C
d. A

____ 36. Which sugar is a part of adenosine diphosphate?
a. glycogen
b. glucose
c. adenine
d. ribose

____ 37. Energy is released from ATP when the bond is broken between _____.
a. ribose and a phosphate group
b. two phosphate groups
c. adenine and a phosphate group
d. adenine and ribose

____ 38. The energy in glucose <u>cannot</u> be released by _____.
a. burning
b. glycolysis
c. respiration
d. photosynthesis

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