

# Biology worksheet essay sample



**ASSIGN  
BUSTER**

1. Organisms that can manufacture their own chemical energy sources are called \_\_\_\_\_.
2. \_\_\_\_\_ depend on energy stored in chemical bonds by autotrophs for their food energy.
3. Simple molecules are further broken down in cells in a process called \_\_\_\_\_, during which energy stored in their chemical bonds is used to power the production of ATP.
4. Glucose is broken down to carbon dioxide and water in organisms which breathe air in a process called as \_\_\_\_\_ respiration.
5. In glycolysis, a major portion of the energy remains in the final product, which is called \_\_\_\_\_.
6. For further derivation of energy, aerobic cells must convert pyruvate into acetyl coenzyme A by stripping off a CO<sub>2</sub> molecule. This process is known as \_\_\_\_\_.
7. All of the reactions of glucose oxidation that follow glycolysis involving the transfer of electrons to their final acceptor, oxygen, take place in eukaryotic cells in the \_\_\_\_\_.
8. Because the chemical formation of ATP is driven by a diffusion force similar to osmosis, this process is referred to as \_\_\_\_\_.
9. The return of the protons into the mitochondrial matrix through mitochondrial membrane channels occurs by the process of \_\_\_\_\_.

10. The amino acids must be first \_\_\_\_\_ before they can be used in catabolic reactions.
11. Fats undergo a process called \_\_\_\_ oxidation, in which the products are acetyl coenzyme molecules.
12. The first stage of cellular respiration, \_\_\_\_\_, occurs with or without oxygen present.
13. When oxygen is limiting, during heavy exercise, muscle cells revert to \_\_\_\_\_ fermentation for energy production.
14. A molecule that stores energy by linking charged phosphate groups near each other is called
- A. ATP
  - B. NADH
  - C. FADH
  - D. cyclic AMP
  - E. pyruvate
15. An electron carrier that is used in harvesting energy from glucose molecules in a series of gradual steps in the cytoplasm is
- A. pyruvate
  - B. cyclic AMP
  - C. ATP
  - D. NAD<sup>+</sup>
  - E. NADH
16. In eukaryotes, the glycolytic reactions take place in the
- A. mitochondria of the cell
  - B. cytoplasm of the cell

- C. ribosomes of the cell
- D. endoplasmic reticulum of each cell
- E. Golgi bodies of the cell

17. The first stage of cellular respiration, and the oldest in terms of evolution is A. decarboxylation

- B. deamination
- C. fermentation
- D. chemiosmosis
- E. glycolysis

18. In the absence of oxygen, hydrogen atoms generated by glycolysis are donated to organic molecules in a process called A. fermentation

- B. decarboxylation
- C. chemiosmosis
- D. electron transport chain reactions
- E. acetyl-CoA formation

19. At least 90% of organisms on the earth are heterotrophs. Examples include all of the following except A. plants

- B. fungi
- C. most eubacteria
- D. animals
- E. most protists

20. In digestion, which is a prelude to metabolism, all of the following occur except A. carbohydrates are degraded to sugars

- B. proteins are degraded into amino acids

C. lipids are degraded to fatty acids

D. water is degraded into hydrogen and oxygen

E. all of these occur

21. Fermentation can be described as a process

A. that takes place only in the absence of oxygen

B. in which the recipient of hydrogen atoms is an organic molecule C. in which water is not one of the by-products

D. in which the Krebs cycle and electron transfer through ETS do not occur E.

all of the above are true

22. Chemiosmotic generation of ATP is driven by

A. phosphate transfer through the plasma membrane

B. sodium, potassium pump

C. a difference in H<sup>+</sup> concentration on the two sides of the mitochondrial membrane D. osmosis of macromolecules

E. large quantities of ADP

23. The reaction,  $C_6H_{12}O_6 + 6O_2 = 6CO_2 + 6H_2O$ , when it occurs in living cells is known as A. aerobic fermentation

B. anaerobic fermentation

C. aerobic respiration

D. glycolysis

E. oxidative phosphorylation

24. Out of the total amount of free energy potentially available from total oxidation of glucose, the number of ATP made by cells is equal to an energy efficiency of about A. 2%

- B. 25%
- C. 32%
- D. 75%
- E. 90%

25. In oxidative respiration, energy is harvested from glucose molecules in a sequence of four major pathways. Which of the following is not one of these four pathways? A. Krebs cycle

- B. glycolysis
- C. electron transfer through the transport chain
- D. beta oxidation
- E. pyruvate oxidation

26. In which of the following steps of glycolysis, 2 ATP molecules are required? A. cleavage and rearrangement

- B. glucose priming
- C. oxidation
- D. pyruvate formation
- E. acetyl-CoA formation

27. A process common to all living organisms, aerobic and anaerobic, is A. glycolysis

- B. fermentation
- C. the Krebs cycle
- D. electron transport chain reactions
- E. pyruvate oxidation

28. All of the following are the end products of glycolysis except

- A. pyruvate
- B. ATP
- C. NADH
- D. NAD<sup>+</sup>
- E. energy

29. The fate of the end-product of glycolysis depends on the type of organism. The name of the end-product is

- A. ATP
- B. NAD<sup>+</sup>
- C. alcohol
- D. ADP
- E. pyruvate

30. The enzymes catalyzing the reactions of glycolysis occur in the

- A. mitochondria
- B. cytoplasm
- C. chloroplasts
- D. nucleus
- E. Golgi apparatus

#### Answer Key

| No. on Test | Correct | | Answer | | 1 | autotrophs | | 2 | Heterotrophs | | 3 | catabolism | | 4 | oxidative | | 5 | pyruvate | | 6 | decarboxylation | | 7 | mitochondrion | | 8 | chemiosmosis | | 9 | diffusion | | 10 | deaminated | | 11 | beta | | 12 | glycolysis | | 13 | lactic acid | | 14 | A | | 15 | D | | 16 | B | | 17 | E | | 18 | A | | 19 | A | | 20 | E | | 21 | E | | 22 | C | | 23 | C | | 24 | C | | 25 | D | | 26 | B | | 27 | A | | 28 | D | | 29 | E | | 30 | B |