

# Microbiology Physiology Test 01-02

## Osmosis and Diffusion - Multiple Choice

1. What term describes one of the properties of the cell membrane?  
a. passive b. semipermeable c. glycolized d. ionized
2. If something is trying to move with the concentration gradient, it is going from an area of a \_\_\_\_\_ concentration of molecules to an area where of a \_\_\_\_\_ concentration of molecules.  
a. high to low b. low to high c. neither
3. Which of these is a substance that cannot simply diffuse into or out of the cell?  
a. Oxygen b. Water c. Protein d. Carbon dioxide
4. What do you call a situation where the concentration of salt in the cell is lower than the concentration of salt in the environment?  
a. Hypotonic b. hypertonic c. isotonic
5. Which direction will the water want to move in the situation described in #4?  
a. into the cell b. into the environment c. nowhere
6. What will happen to the cell if the water continues moving that way?  
a. cell will lys b. cell will crenate  
c. cell will kick back on the beach in Tahiti

## Completion - Types of transport

7. What is one of the main benefits to using passive transport?
8. Why can't a cell use passive transport for all of its needs?
9. Which type of transport can move materials either with or against the concentration gradient?
10. Which type of transport protein can move two different molecules in the same direction at one time?

## Matching - Reaction Types

A

B

- 
- |                                |               |
|--------------------------------|---------------|
| 11. Building new cell membrane | A. Endergonic |
| 12. Breaking most things down  | B. Exergonic  |
| 13. Gives off energy           |               |
| 14. Respiration                |               |
| 15. Requires Energy            |               |

### True or False - The utilization of sugar

16. The two common complex carbohydrates are glucose and fructose.
17. Monosaccharides are small, 6 carbon molecules such as glucose.
18. Sugar molecules contain a pathetically tiny amount of energy.
19. One main reason that we cannot use sugar in its existing form is that the majority of the stored energy would be wasted because cells cannot recapture leftover energy.
20. Sugar molecules are quick to release their energy.
21. Sugar contains approximately 600,000 calories/mol.

### Completion - ATP

22. Which part of an ATP molecule remains unchanged when it is used, the Adenosine or the phosphate?
23. Name two reasons why ATP is similar to a rechargeable battery.
24. What kind of shelf life does ATP have?
25. Where does the cell get the energy that is stored in an ATP molecule (be general)?
26. Exactly where is the energy stored in an ATP molecule?

### Multiple Choice - Respiration

27. How many Carbon atoms are there in a pyruvate Molecule?  
a. 3    b. 6    c. 12    d. 36
28. How many ATP can be made from one Glucose molecule (assuming you have O<sub>2</sub>)?  
a. 4    b. 12    c. 32    d. 36
29. The most important idea in glycolysis is:  
a. 2 ATP are produced  
b. Oxygen is not needed  
c. It occurs in the cytoplasm  
d. the reaction rate doubles afterwards

## Matching - Stages of Respiration

- |  |                             |
|--|-----------------------------|
| 30. NADH <sub>2</sub> picks up free electrons                        | A. Glycolysis               |
| 31. Energy rich electrons are released by the breakdown of Pyruvate. | B. Krebs Cycle              |
| 32. Directly requires O <sub>2</sub> .                               | C. Electron Transport Chain |
| 33. CO <sub>2</sub> is produced                                      | D. Fermentation only        |
| 34. 32 ADP → 32 ATP.   |                             |
| 35. Methane, Alcohol produced  |                             |
| 36. Doesn't need O <sub>2</sub> at all.                              |                             |
| 37. Pyruvate is created  |                             |
| 38. Terminal Electron acceptor is needed                             |                             |
| 39. Approx. 8 ATP produced   |                             |
| 40. Uptight electrons are reunited with a friendly atom to call home |                             |

Essay: (PICK ONE)

A.