**CHAPTER 7: CELLULAR TRANSPORT OUTLINE QUIZ #3**

***SECTION 4***

1. The biological balance cells must maintain with their environment is called \_\_\_\_\_.
2. This balance is maintained by controlling /regulating what \_\_\_\_\_\_\_\_\_\_\_ the cell.
3. During diffusion, molecules spread from an area of \_\_\_\_\_ concentration to an area of \_\_\_\_\_.
4. A \_\_\_\_\_ is a difference in concentrations of a substance across space.
5. Eventually, the concentration of molecules in a space will reach equilibrium – that is, it is \_\_\_\_\_\_ throughout a space.
6. The rate of diffusion is affected by \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_\_. When any of them \_\_\_\_\_\_\_ the rate increases.
7. Once dynamic equilibrium is reached, molecules \_\_\_\_\_\_\_, but overall \_\_\_\_\_\_\_ remains the same.
8. \_\_\_\_\_\_ is the movement of materials across a plasma membrane using \_\_\_\_\_\_\_ proteins.
9. \_\_\_\_\_\_ proteins change shape to help move particles through the membrane and \_\_\_\_\_\_ proteins copen and close to allow substances to diffuse through.
10. During osmosis, \_\_\_\_\_ diffuse through a membrane from an area of \_\_\_\_\_ concentration to an area of \_\_\_\_\_.
11. If the concentration of solute molecules outside the cell is \_\_\_\_\_ than that in the cell, the solution is hypotonic to its environment.
12. If a cell is in a hypotonic solution water will move \_\_\_\_\_ the cell until \_\_\_\_\_ is established.
13. If the concentration of solute molecules outside of the cell is \_\_\_\_\_ than that in the cell, the solution is hypertonic to its environment.
14. If a cell is in a hypertonic solution, water will move \_\_\_\_\_ the cell until \_\_\_\_\_ is established.
15. If the concentration of solutes inside and outside the cell is equal, the solution is \_\_\_\_\_ to its environment.
16. As water diffuses into the cell, \_\_\_\_\_ increases – and the cell becomes \_\_\_\_\_.
17. When water leaves the cell, a cell wilts – a condition called \_\_\_\_\_.
18. If a cell takes in so much water that they \_\_\_\_\_, a condition called cytolysis occurs.
19. Diffusion and osmosis are forms of \_\_\_\_\_, which means they do not require the use of chemical energy.
20. \_\_\_\_\_ involves the use of chemical energy to move substances across a cell membrane.
21. Chemical energy is used to move substances from an area of \_\_\_\_\_\_ concentration to an area of \_\_\_\_\_\_ concentration.
22. Some of the \_\_\_\_\_ associated with the cell membrane help transport molecules across it. These are called \_\_\_\_\_.
23. The \_\_\_\_\_\_\_\_\_\_ is an active transport system that moves sodium ions out of a cell and potassium ions in. Movement of these ions is \_\_\_\_\_ the respective concentration gradients.
24. Molecules that are too large to pass through the cell membrane can enter and exit the cell by \_\_\_\_\_ and \_\_\_\_\_.
25. To maintain homeostasis, large molecules must be exported (as well as imported). This exporting of large molecules is accomplished by \_\_\_\_\_\_.
26. Molecules that cannot cross the membrane can diffuse through \_\_\_\_\_, which are formed by proteins in the membrane.

**Part 2**

A particular type of animal cell consists of 68% water and 32% solutes. It placed in three different solutions: Solution A is a 68% water/32% solute solution. Solution B is a 58% water/42% solute solution, and solution C is a 76% water/24% solute solution.

**Draw a picture of one of these cells placed in EACH SOLUTION A, B, AND C (and label them)**

A.

* 1. Solution A is \_\_a\_\_\_ to the cell; the cell is \_\_b\_\_\_ to Solution A
  2. Water will move \_\_a\_\_ the cell by the process of \_\_b\_\_\_
  3. The solutes will move \_\_a\_\_\_ the cell by the process of \_\_b\_\_
  4. The processes that moved the water and the solutes are forms of \_\_a\_\_\_ transport, which means the require \_\_b\_\_\_
  5. The turgor pressure in the cell will \_\_\_\_\_
  6. The cell and it’s environment are already in \_\_a\_\_\_. In order to disrupt it, \_\_b\_\_\_ or \_\_\_c\_\_ would have to be added to the environment. If \_\_d\_\_\_ is added, the solution would become hypotonic to the cell and turgor pressure would \_\_e\_\_\_, causing \_\_f\_\_\_ to occur. If \_\_g\_\_\_ is added, the solution would become hypertonic to the cell and turgor pressure would \_\_h\_\_\_, causing \_\_i\_\_\_ to occur.

B.

* 1. Solution B is \_\_a\_\_\_ to the cell; the cell is \_\_b\_\_\_ to Solution B
  2. Water will initially move \_\_a\_\_ the cell by the process of \_\_b\_\_\_
  3. The solutes will initially move \_\_a\_\_\_ the cell by the process of \_b\_\_\_\_
  4. The processes that moved the water and the solutes are forms of \_\_a\_\_\_ transport, which means they require \_\_b\_\_\_
  5. The turgor pressure in the cell will \_\_a\_\_\_, causing \_\_b\_\_\_ to occur
  6. If the cell and it’s environment reach equilibrium, the solute concentration would be \_\_a\_\_\_% and the water concentration would be \_\_b\_\_\_% both inside and outside of the cell

C.

1. Solution C is \_\_a\_\_\_ to the cell; the cell is \_\_b\_\_\_ to Solution C
2. Water will initially move \_\_a\_\_ the cell by the process of \_\_b\_\_\_
3. The solutes will initially move \_\_a\_\_\_ the cell by the process of \_\_b\_\_\_
4. The processes that moved the water and the solutes are forms of \_\_a\_\_\_ transport, which means they require \_\_b\_\_\_
5. The turgor pressure in the cell will \_\_a\_\_\_, causing \_\_b\_\_\_ to occur
6. If the cell and it’s environment reach equilibrium, the solute concentration would be \_\_a\_\_\_% and the water concentration would be \_\_b\_\_\_% both inside and outside of the cell