WLHS / AP Bio / Monson

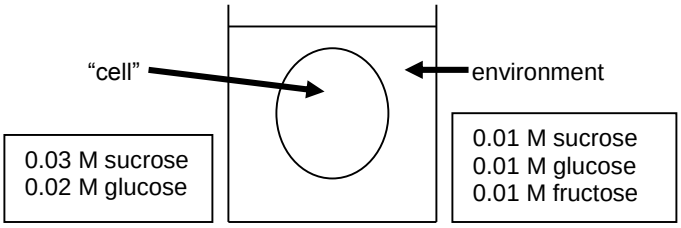
Name_____
Date_____Per_____

STUDY QUESTIONS – CH 7, part 2 – Cell Transport / Processes

1) What is diffusion and how does a concentration gradient relate to passive transport?

2) Why is free water concentration the "driving" force in osmosis?

Questions #3-7:
An artificial cell consisting of an aqueous solution enclosed in a selectively permeable membrane has just been immersed in a beaker containing a different solution. The membrane is permeable to water and to the simple sugars glucose and fructose but completely impermeable to the disaccharide sucrose.



3) Which solute(s) will exhibit a net diffusion into the cell?_____

4) Which solute(s) will exhibit a net diffusion out of the cell?_____

5) Which solution – the cell contents or the environment – is hypertonic to the other?_____

6) In which direction will there be a net osmotic movement of water?_____

7) After the cell is placed in the beaker, which of the following changes will occur?_____
   A) the artificial cell will lose water and become more flaccid.
   B) the artificial cell will gain water and become more turgid.
   C) the artificial cell will neither gain nor lose water and will remain the same.

8) Why is water balance different for cells **with a cell wall** as compared to cells **without a cell wall**?

9) What is the relationship among **ion channels**, **gated channels** and **facilitated diffusion**?

10) How is **ATP** specifically used in active transport? (see fig. 7.18 for ATP involvement!)

11) Define and contrast the following terms: membrane potential, electrochemical gradient, electrogenic pump and proton pump.

➔ **membrane potential:**

➔ **electrochemical gradient:**

➔ **electrogenic pump:**

➔ **proton pump:**

12) What is **COTRANSPORT** and why is it an advantage in living systems?

13) What is a **LIGAND**?

14) Contrast the following terms: phagocytosis, pinocytosis and receptor-mediated endocytosis. Give an example of each.

➔ **phagocytosis:**

➔ **pinocytosis:**

➔ **receptor-mediated endocytosis:**

15) **WHAT IF?** – If a *Paramecium caudatum* swims from a hypotonic to an isotonic environment, will its contractile vacuole become more active or less? WHY?

16) As a cell grows, its plasma membrane expands. Does this involve endocytosis or exocytosis? Explain.

17) **MAKE CONNECTIONS:** In 6.7 (p. 119-120), you learned that animal cells make an extracellular matrix (ECM). Describe the cellular pathway of synthesis and deposition of an ECM glycoprotein. (What cell parts would be involved?...in what order?)