Name_____Class_____Date_____

Diffusion and Osmosis Practice Worksheet Pg. 203-213

Part A: **Define** the following terms using the textbook or your class notes:

a. Homeostasis: _____

b. Permeable Membrane: _____

c. Selectively Permeable Membrane: _____

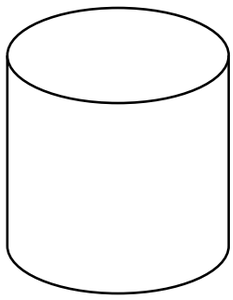
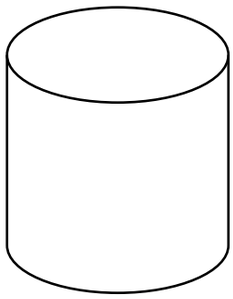
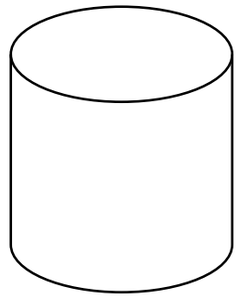
d. Impermeable Membrane: _____

e. Hypertonic Solution: _____

f. Hypotonic Solution: _____

g. Isotonic Solution: _____

Part B: **Illustrate** what would happen to cell membranes in the following type of solutions. **Label** the cell and the cell membrane for each picture. Use **ARROWS** to show which direction water would move.

Isotonic	**Hypertonic**	**Hypotonic**
		

Part C: Which way would water molecules move in the following situations? **Use the following answer choices:** *water moves into the cell, water moves out of the cell, water moves in and out of the cell equally*

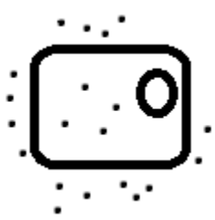
a. Cucumber slices soaked in sugar water _____

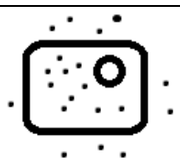
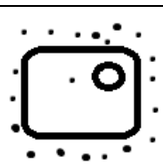
b. Salt poured onto a snail _____

c. Vegetables sprayed with water _____

Part D: Look at these pictures of a cell surrounded by starch molecules. The small black dots are starch molecules. **<u>Circle</u>** the picture that correctly shows where starch molecules should appear **<u>AFTER DIFFUSION HAS TAKEN PLACE</u>**.

BEFORE



A	B	C
		

Part E: Complete the table by checking the correct column for each statement.

Statement	Isotonic Solution	Hypotonic Solution	Hypertonic Solution
a. Causes the cell to swell (increase in mass)			
b. Doesn't change the shape of the cell			
c. Causes osmosis			
d. Causes a cell to shrink (decrease in mass)			
e. Cell is in equilibrium between water and solutes			

Part F: Short answer

A. What is the function of the cell membrane? Create an analogy of the function of the cell membrane to a real life example.

_____

_____

B. What can happen to red blood cells when placed into a hypotonic solution?

_____

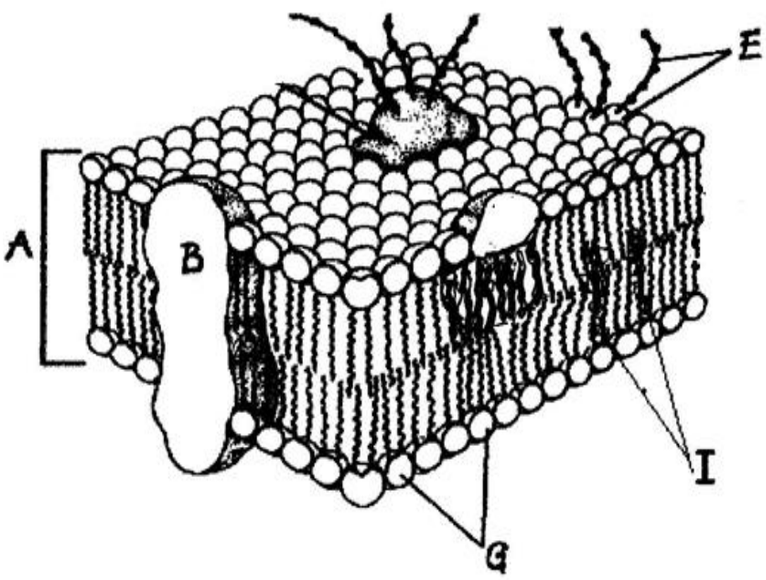
_____

C. Explain how hypotonic and hypertonic solutions can make a plant rigid and firm or make it wilt.

_____

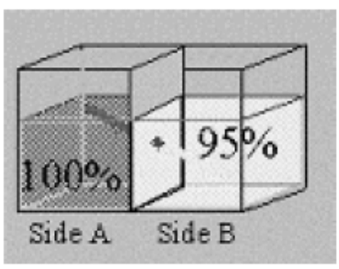
_____

Part G: **Color code** and **identify** the parts of the cell (plasma) membrane



	Phospholipid bilayer (no color)
	Membrane protein (red)
	Hydrophobic lipid tails (orange)
	Hydrophilic lipid heads (yellow)
	Carbohydrate chain (blue)

Part H: Multiple Choice: **Circle** the correct answer



In the above figure, the setup is made of two chambers that are separated by a semipermeable membrane. Side A is filled with pure water and side B is filled with 95% salt solution. What will be the direction of water movement?

A Water will diffuse from side A to Side B.

B Water will diffuse from side B to Side A.

C Water will move in both directions at the same rate.

D Water will move in both directions but the rate of diffusion cannot be predicted.

What is the **primary** difference between diffusion and osmosis?

A Diffusion requires energy input but osmosis does not.

B Diffusion does not require energy input but osmosis does.

C Diffusion is the movement of water from high to low concentration, while osmosis is the movement of any substance from high to low concentration.

D Diffusion is the movement of any substance from high to low concentration, while osmosis is the movement of water from high to low concentration.

In the human body, oxygen is absorbed by the lungs and nutrients are absorbed by the small intestine. In a single-celled organism, this absorption directly involves the

A nucleus

B chloroplasts

C cell membrane

D chromosomes