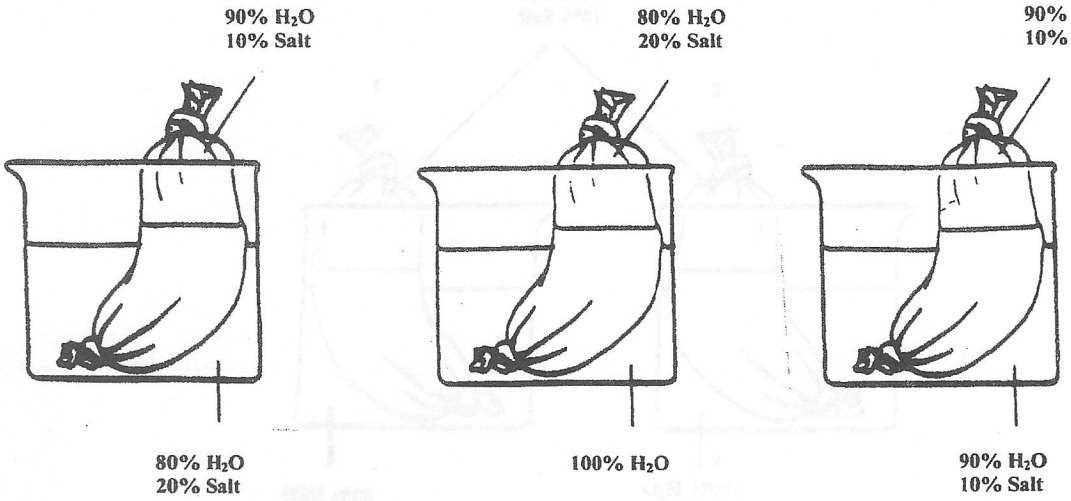
Name: _____ Date: _____ Per: _____

CRITICAL THINKING: ANOTHER LOOK AT OSMOSIS

The direction in which water molecules move during osmosis depends on where the salt molecules are more highly concentrated. Study the diagrams below. Decide whether the solution in each beaker is **HYPOTONIC**, **ISOTONIC**, or **HYPERTONIC** in relation to the solution inside the cellulose bag. **Draw arrows** to indicate the direction in which the water will move in each case.



A. _____ B. _____ C. _____

1. Intravenous (IV) solutions must be prepared so that they are isotonic to red blood cells. A 0.9% salt solution is isotonic to red blood cells.

A. Explain what will happen to a red blood cell placed in a solution of 99.3% water and 0.7% salt.

_____

_____

B. What will happen to a red blood cell placed in a solution of 90% water and 10% salt? Explain.

_____

_____

2. What keeps plant cells from bursting when they are placed in a hypotonic solution?

_____

_____

3. How does being placed in a hypertonic solution affect a plant?

_____

_____

4. In regard to the solutions in the bags and beakers, what is meant by equilibrium?

_____

_____

5. What happens to the motion of molecules after equilibrium is reached?

_____

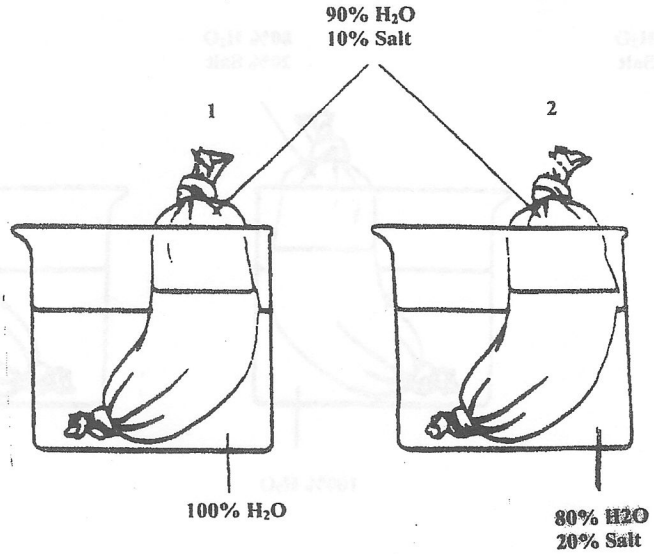
_____

6. What is turgor pressure in a plant cell?

_____

_____

Cells maintain homeostasis by passive and active transport across their membranes. Study the diagrams of the beakers below, noting the concentrations of salts in the beakers and in the semi-permeable bags. Water molecules can pass through the bags, but salt cannot. **Draw arrows** in the diagrams to show the direction in which water will move. Then answer the questions that follow.



1. Which of the beakers contains a solution that is hypertonic relative to the bag's contents? _____

2. What will eventually happen to the concentrations in beaker 2? _____

_____

3. Will the same thing happen in beaker 1? Why or Why not? _____

_____

_____

4. In which beaker will the bag experience a rise in turgor pressure? _____

5. What will eventually happen as the pressure rises? _____