Glue this side down into your ISN using only

4 dots of glue

"A dot is a lot!"

Fold along line

Cut along dotted line

CELL TONICITY

Using the key below and the information given, answer the questions.

key:

solute particle •

cell membrane - - - - - - - -

cell wall ═══

in all solutions, the solvent is H_2O

Part I. Fill in the blanks:

A _____ is a fluid in which a substance is dissolved.

A _____ is a substance dissolved in a solvent.

A _____ is a combination of solute and solvent.

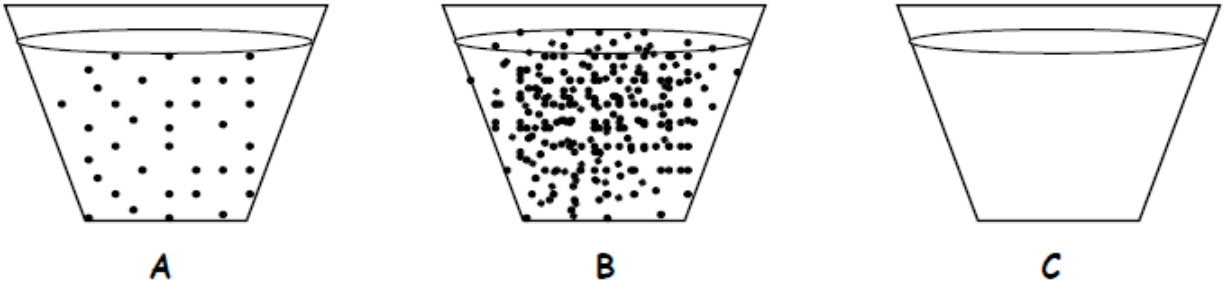
The process by which H_2O diffuses across a membrane is called _____ .

Part II. Look at the solutions illustrated below and fill in the blanks.

1. **Solution B** is _____ to **solution A**. This is because **solution B** has a greater concentration of _____ in it than does **solution A**. **Solution C** has no solutes dissolved in it, therefore it is _____ to both **Solutions A** and **B**.

2. As the relative concentration of **solutes** in two solutions increases, of necessity the relative concentration of **water** in the same two solutions _____. **Solution A** has a lower concentration of _____ than does **Solution C**; **Solution A** is also **hypertonic** to **Solution C**.

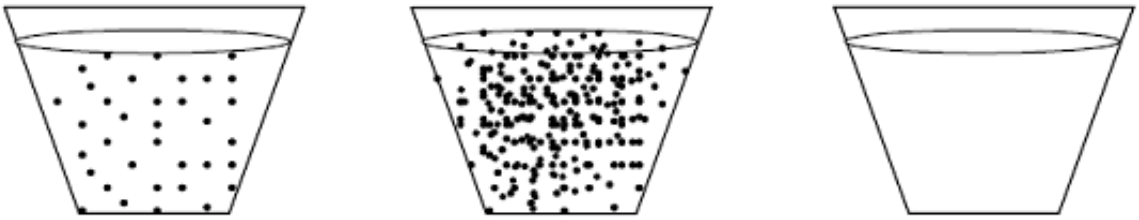
3. If you wanted to make **Solution A isotonic** to **Solution B**, you could add **water** to Solution _____ **or** you could add **solute** to Solution _____ . If you took all three solutions, put them into a large container and mixed them thoroughly, then redistributed the solution among the three containers, **Solution A** would be _____ to **Solution B**. **Solution A** would also be _____ to **Solution C**, and **Solution C** would be _____ to **Solution B**.



A **B** **C**

Part III. Below are represented a **plant cell** and an **animal cell**. Refer to the **key** at the top left of page one and fill in the blanks below. (If you find yourself counting solute dots, you're working **much** too hard!) **Assume that the cell membranes are allow only water (not the solutes) to pass through.**

animal cell **plant cell**



A **B** **C**

1. Because the **cytoplasms** of the plant and the animal cell have **equal** concentrations of solutes, we can say that their cytoplasms are _____ to each other. If we put both the plant and the animal cells into **Solution A**, we would expect **no change** in the cells, because **Solution A** is _____ to the cytoplasm of each cell.

2. Let's put both cells into **Solution B**. Because **Solution B** is **hypertonic** to the cytoplasms of the cells, we would expect **water** to _____ the cells through the process of _____ . This would result in the cytoplasm of both cells shrinking.

3. Now we'll put both the plant and the animal cell into **Solution C**, which, because it contains **no solutes** at all, is _____ to the cytoplasm of both cells. _____ will enter both cells through **osmosis**. The **animal cell** is likely to _____, unfortunately. The **plant cell**, however, is protected from this because of the presence of its _____ _____, which is lacking in the animal cell.