

## Diffusion / Osmosis Worksheet

1. Trace the path of production for insulin by ranking these steps from 1 (first) to 7 (last)

- \_\_\_\_\_ insulin is exported from plasma membrane
- \_\_\_\_\_ ribosome binds mRNA
- \_\_\_\_\_ info from DNA copied into mRNA
- \_\_\_\_\_ polypeptide chain grows inside RER
- \_\_\_\_\_ ribosome binds RER
- \_\_\_\_\_ protein processed/sorted in Golgi
- \_\_\_\_\_ vesicle containing insulin travels to the plasma membrane

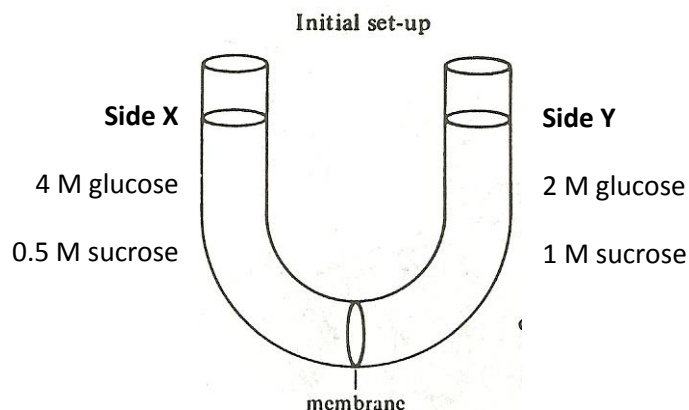
2. You have four beakers with solute concentrations as follows:

**A = 10%, B = 20%, C = 15%, and D = 10%**

In the blanks for a-c indicate if hypertonic, hypotonic, or isotonic

- a. Beaker A is \_\_\_\_\_ to beaker B.
- b. Beaker B is \_\_\_\_\_ to beaker C.
- c. Beaker D is \_\_\_\_\_ to beaker A.
- d. IF solutions from beakers A and B are separated by a membrane permeable ONLY to water, Draw an arrow in the direction water will flow: A \_\_\_\_\_ B.

The following questions refer to the following situation. The solutions in the two arms of the U-tube are separated by a semipermeable membrane that allows the passage of glucose, but not sucrose. At the beginning of the experiment the volumes of liquid in both sides of the U-tube are the same. The experiment is allowed to sit for 3 days.



**Select from the following answer choices:**

- a Both **the statement** and the **reason** are correct
- b The **statement** is correct, but the **reason** is incorrect
- c The **statement** is incorrect, but the **reason** is correct
- d The **statement** and the **reason** are both incorrect

- \_\_\_\_\_ 3. The sucrose on side X will be more concentrated and the sucrose on side Y will become less concentrated *because* a substance tends to diffuse from regions of lower concentration to higher concentration.
- \_\_\_\_\_ 4. The concentrations of sucrose on either side of the membrane will remain unchanged *because* the membrane is impermeable to sucrose.
- \_\_\_\_\_ 5. The fluid will increase on side Y and decrease on side X because water molecules will move through the membrane from regions of higher to lower water concentrations.
- \_\_\_\_\_ 6. Water molecules will move only from side Y to side X and never from side X to side Y *because* water molecules move only from regions of higher to regions of lower concentration.
- \_\_\_\_\_ 7. The concentration of sucrose on side X will decrease and that on side Y will increase *because* water molecules will diffuse through the membrane from side Y to side X by osmosis, thus lowering the glucose concentrations on side X.