

May 7 2006

Diffusion.assess8.final.doc

Test for Diffusion, Osmosis, and Dialysis Activity

Name: \_\_\_\_\_

Teacher: \_\_\_\_\_

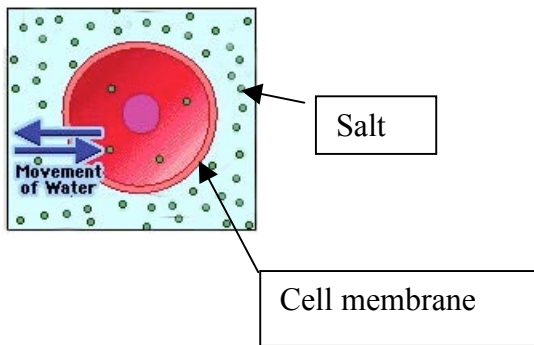
Date \_\_\_\_\_

Class \_\_\_\_\_

1. A drop of ink is placed on the surface of the water. Eventually the ink is evenly distributed throughout the entire beaker. Explain how this happens using what you know about molecules and their motions.

2. A blood cell is placed in a solution. The concentration of salt is higher in the solution than inside the cell. The cell membrane allows water to go through but not the salt ions.

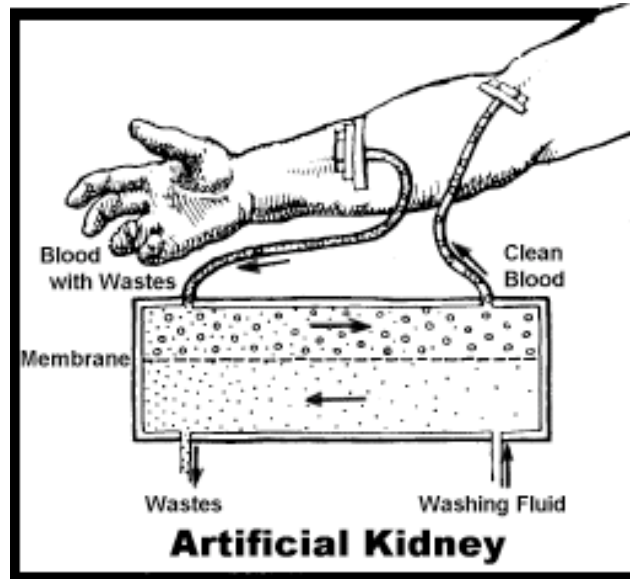
a. Draw a series of three pictures showing what happens to the cell over time with the last picture showing the equilibrium stage.



Change in time →

b. Explain, as the blood cell changes volume, what happens to the concentration of salt inside and outside the cell=

3. The kidneys remove small molecules of waste from the blood, leaving behind large molecules, such as proteins, and blood cells. When kidneys do not work well, an artificial kidney is needed. Inside the artificial kidney, blood goes to a container separated by a cellophane membrane from another container that holds fluid.



A schematic of an artificial kidney, from [www.kidneyetn.org/nkftdial.html](http://www.kidneyetn.org/nkftdial.html)

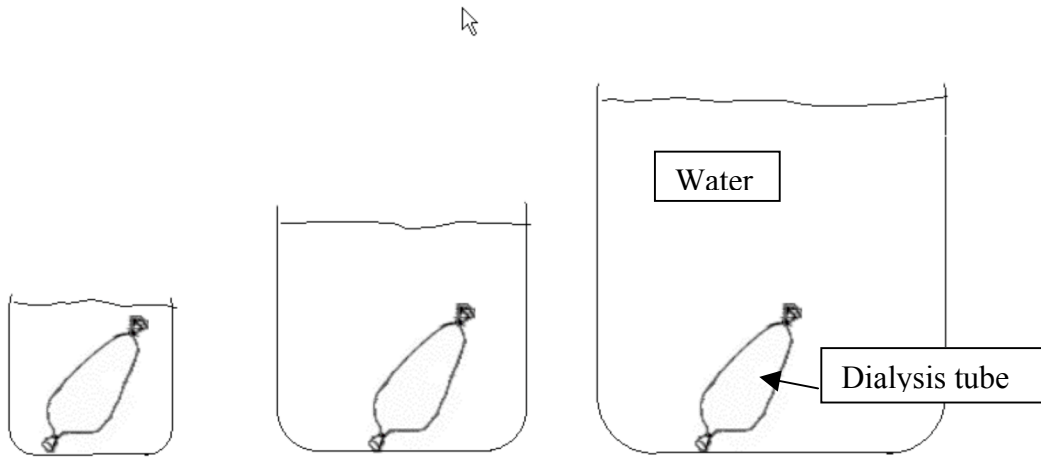
a. The membrane must have channels that are (check all that apply):

- Larger than salt ions
- Smaller than salt ions
- Larger than waste molecules
- Smaller than waste molecules
- Larger than blood cells
- Smaller than blood cells

b. Suppose the liquid coming out of the wastes tube is pumped directly back to the washing fluid tube. Describe what would happen.

4. A lab technician needs to remove salt ions from a protein solution in order to restore the protein's structure. To do so, she needs to place the sample containing proteins and salt in a dialysis bag and then place the bag in beaker of water so the salt can be removed. She needs to choose the size of the beaker. She has a choice of the following three beakers.

a. Circle the one she should choose to remove the most salt.



b. Explain why you circled the beaker you did.