APBio Lab 1 PreLab Name Section

Diffusion and Osmosis

Use your lab sheet to help you answer these questions

1. What two things will we be doing in this lab?

2. Define diffusion.

3. What happens in equilibrium?

4. Define osmosis.

5. What is water potential?

6. Define dialysis and explain what determines if a substance can pass through the membrane.

7. Do you expect glucose to move out of the dialysis tubing? Why or why not? How will you test this?

8. Do you expect starch to move out of the bag? Why or why not? How will you test this?

9. Do you expect water to move into or out of the bag? Explain your answer. How will you test this?

10. Do you expect IKI (Lugol's iodine) to move into the bag? Why? How will you be able to tell?

11. Explain what it means when two solutions are isotonic and discuss the net direction of water flow.

12. Discuss the difference between hypotonic and hypertonic solutions and discuss the net direction of water flow.

13. In figure 1.1, identify the hypotonic solution _____; the hypertonic solution _____; and the net direction of initial water flow _____.

14. A dialysis bag contains a 0.6 M sucrose solution. It is placed into a beaker containing 0.3 M sucrose solution. Is the dialysis bag solution hypotonic or hypertonic to the beaker solution? _____. What is the expected direction of water flow?

15. What solution would the beaker need to contain in order for there to be no net movement of water between the bag and the beaker?

16. How will you determine if water has flowed into or out of the bags in part B of your experiment?

17. What does water potential measure?

18. What are the two components that influence water potential?

19. If a potato core is placed into pure water which do you expect will be the net direction of water flow?

20. Discuss the difference between plant and animal cell response when placed into hypotonic solution.

21. How does water movement relate to pressure? Give examples that illustrate this.

22. Does increasing pressure increase or decrease the water potential number?
    _____

23. Does increasing solute concentration increase of decrease the water potential number?
    _____

24. Will water go from an area of -3 water potential to one of 0 water potential? _____
    Explain.

25. If we add enough solute to the outside solution, what will happen to the potato cells in our experiment?

26. Define plasmolysis.

27. What do you expect will happen to our onion cell when we place it in a salt solution?