

name _____

date _____

A.P. Biology Prelab for Laboratory 1. DIFFUSION AND OSMOSIS

Introduction: Dialysis tubing allows molecules to diffuse through microscopic pores in the tubing. Molecules smaller than the pores can diffuse through the dialysis membrane along their concentration gradients while molecules larger than the pore size are prevented from crossing the dialysis membrane.

Answer questions in complete sentences. For problems, show equations & work with units and appropriate significant figures.

Part 1A: Predict whether or not each of these is expected to pass through the dialysis membrane.

water _____

glucose _____

I₂KI _____

starch _____

How will you know whether the iodine solution has crossed the dialysis membrane?

Part 1B: In the following situations, assume that sucrose cannot diffuse through the dialysis membrane.

1. If a dialysis bag containing a 0.20 M solution of sucrose is placed in a beaker of distilled water, will the dialysis bag gain or lose mass? _____
Explain why.

2. A dialysis bag has an initial mass of 30.2 g and a final mass of 26.3 g. Find the % change in mass.

answer _____

Part 1C: A graph of the % change in mass of potato cores crosses the X axis at a sucrose concentration of 0.40 M at a room temperature of 24.0°C. Find the osmotic potential of the sucrose solution.

answer _____

Find the water potential of the potato cells.

answer _____