

Study Guide
Transport

Name _____
Block _____

Please use this study guide as you prepare for the test, it will be very helpful to you. As always, save the study guides to prepare for the final exam.
Italicized questions do not require a written answer.

1. What are ion channels- and are they specific to the ions they will transport?

2. *Know the elementary ways organisms can maintain homeostasis through transport as discussed in class- these are big ideas. For examples- humans use breathing for gas exchange, a contractile vacuole regulates water in some protists, etc.*

3. *Be able to interpret the results of the osmosis diffusion lab. If you were absent, it is important to get valid results. You will get two questions about this lab on the test.*

4. *Know and understand the Vocabulary list inside the packet.*

5. a) How does a contractile vacuole work?

b) What would cause the vacuole to work harder?

6. a. What is turgor pressure?

b. Does loss or gain of turgor pressure occur in animal cells? why or why not?

c. If an elodea leaf is placed in a hypotonic environment, will turgor pressure increase or decrease? How about a hypertonic environment?

7. *Study your graphic organizer of cells in hypo, hyper, and isotonic environments. Know whether the cell will shrink, expand, or remain the same in each environment and whether there are more dissolved particles inside of the cell or in the fluid surrounding the cell (or neither).*

8. a) The main purpose of transport is that it helps the cell maintain _____.

b) The organelle responsible for regulation of molecules is the _____.

c) This membrane works in conjunction with embedded membrane _____.

9. a) If a blood cell is isotonic in a 0.5% salt solution, what would happen to the cell if placed in a 0.1% salt solution?

b. What would happen to the same cell placed in a 3.4% salt solution?

10. In active transport, substances move from areas of _____ concentration to an area of _____ concentration. In active transport, substances move

with or along / **against** (circle one) a concentration gradient.

And **need** / **don't need** (circle one) ATP

11. In passive transport, (such as diffusion) substances move from areas of _____ concentration to an area of _____ concentration.

In passive transport, substances move

with, or along / **against** (circle one) a concentration gradient.

And continues until _____ is reached. (*hint: think equal*)

And **need** / **don't need** (circle one) ATP

12. a) You will see pictures of cells taking in materials from extracellular environment and releasing cells into their extracellular environment, so know the difference between endocytosis and exocytosis. Are they both passive or active forms of transport?

b) What are pinocytosis and phagocytosis?

c) How are endocytosis and exocytosis different from diffusion?

13. How is a concentration gradient important in diffusion?

14. a) How does the sodium potassium pump work?

b) What is the source of energy used by the membrane protein in the operation of the sodium potassium pump?

15. a) How is glucose able to get into a cell (Hint: it moves along a concentration gradient, does NOT need energy, but it's too large to diffuse).

b) This type of diffusion requires a _____ protein.

c) What are other characteristics of facilitated diffusion: is it active or passive, and what happens to the shape of the carrier protein?

16. Osmosis is the diffusion (or passage) of _____. Is this active or passive?

17. If ink is placed in water, the ink spreads out. The dispersal of ink is an example of _____. (Hint: not osmosis, because water is not moving!)

18. Fill in the types of proteins that can be embedded in a cell membrane:

a. identifies cells and allows molecules in _____

b. transports large particles _____

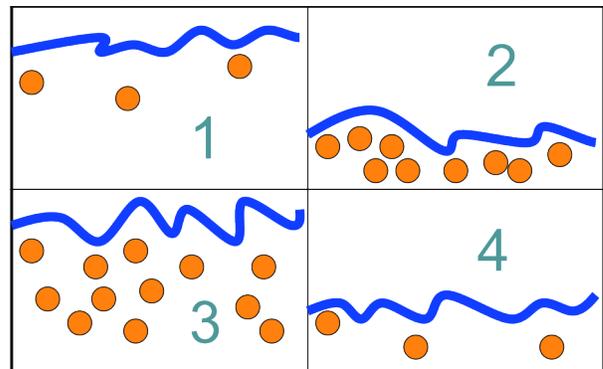
c. captures signal molecules _____

d. ATP synthase, for one _____

19. You will see 4 cells, side by side, each having different levels of water and different levels of solute particles. Be able to decide, for example, that if one has more solutes than the other, in which direction will solutes move? In which direction will water move? Assume a selectively permeable membrane separates the cells & all molecules are able to get through the membrane.

a. Water level in cell 1 is higher than the water level in cell 2. As system approaches equilibrium, into which cell will water flow?

b. As the system approaches equilibrium, where will solute particles from cell 3 most likely flow? (what about solvent?)



c. Will water flow out of or into cell 4? From where will it come (or go)?