Name _____ Class_____Date_____

Chapter 5: Homeostasis and Cell Transport

In the space provided, write the letter of the description that best matches the term or phrase.

_____ 1. plasmolysis

_____ 2. vesicle

_____ 3. hypertonic

_____ 4. concentration gradient

_____ 5. cytolysis

_____ 6. hypotonic

_____ 7. phagocytosis

_____ 8. pinocytosis

_____ 9. sodium-potassium pump

_____ 10. isotonic

_____ 11. facilitated diffusion

_____ 12. exocytosis

_____ 13. phospholipids

_____ 14. carrier protein

a. relatively low solute concentration
b. membrane-bound organelle
c. uptake of large particles, solids
d. shrinking of cells
e. uptake of solutes or fluids
f. swelling or bursting of cells
g. concentration difference across space
h. relatively high solute concentration
i. helps a cell rid itself of waste vacuoles
j. double layer that makes up cell membrane
k. transports potassium ions into the cell
l. transport of a specific substance down its concentration gradient by a carrier protein
m. solution should have no affect on a cell
n. embedded in cell membrane; it transports molecules into or out of the cell

TRUE-FALSE- If a statement is true, write T in the blank. If a statement is false, write F in the blank, and then in the space provided, explain why the statement is false.

____ 15. The random movement of molecules in diffusion requires energy in the form of ATP.

_____

____ 16. When a solution is in equilibrium, all movement of its molecules stops.

_____

____ 17. In a plant cell, water molecules exert turgor pressure on the inside of the cell wall.

_____

____ 18. Molecules diffuse down their concentration gradient.

_____

Name _____ Class_____Date_____

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 19. The process of diffusion requires
- a. a cell membrane.
- b. an aqueous solution.
- c. a difference in the concentration of molecules throughout a space.
- d. All of the above

_____ 20. If the molecular concentration of a substance is the same throughout a space, the substance
- a. has a large concentration gradient.
- b. is in equilibrium.
- c. will undergo diffusion.
- d. will undergo osmosis.

_____ 21. If the concentration of a sugar solution is lower outside the cell than inside the cell, which of the following will happen by osmosis?
- a. Sugar will move into the cell.
- b. Water will move into the cell.
- c. Sugar will move out of the cell.
- d. Water will move out of the cell.

_____ 22. A type of transport in which water moves across a membrane and down its concentration gradient is
- a. simple diffusion.
- b. facilitated diffusion.
- c. diffusion through ion channels.
- d. osmosis.

_____ 23. Net movement of water across a cell membrane occurs
- a. from a hypotonic solution to a hypertonic solution.
- b. from a hypertonic solution to a hypotonic solution.
- c. from an isotonic solution to another isotonic solution.
- d. through gated water channels.

_____ 24. All forms of passive transport depend on
- a. energy from the cell in the form of ATP.
- b. the kinetic energy of molecules.
- c. ion channels.
- d. carrier proteins.

_____ 25. Plasmolysis of a human red blood cell would occur if the cell were
- a. in an isotonic solution.
- b. in a hypertonic solution.
- c. in a hypotonic solution.
- d. None of the above

_____ 26. A structure that can move excess water out of unicellular organisms is a
- a. carrier protein.
- b. contractile vacuole.
- c. ion channel.
- d. cell membrane pump.

_____ 27. The diffusion of ions across the membrane is influenced by which of the following?
a. the electrical charge of the ion
b. only the concentration gradient of the ion
c. the number of enzymes in the cell membrane
d. Both (a) and (c)

_____ 28. Which of the following is NOT a characteristic of active transport?
a. It moves substances against a concentration gradient.
b. It requires energy from the cell.
c. It involves facilitated diffusion.
d. It relies on carrier proteins that often function as pumps.

_____ 29. Diffusion is the movement of a substance
a. through only a lipid bilayer.
b. from an area of low concentration to an area of higher concentration.
c. only in liquids.
d. from an area of high concentration to an area of lower concentration.

_____ 30. Molecules that are too large to be moved through the cell membrane can be transported into the cell by
a. osmosis.
b. endocytosis.
c. exocytosis.
d. diffusion.

_____ 31. Sodium-potassium pumps
a. move Na^+ ions and K^+ ions into cells.
b. move Na^+ ions and K^+ ions out of cells.
c. move Na^+ ions out of cells and K^+ ions into cells.
d. move Na^+ ions into cells and K^+ ions out of cells.

Read each question, and write your answer in the space provided.

32. Name three types of passive transport and three types of active transport.

_____

_____

_____

33. Describe what would happen to the molecules in a drop of ink dropped into a beaker of water. What is this process called?

_____

_____

34. What is the fundamental difference between carrier proteins that participate in *facilitated diffusion* and carrier proteins that function in *active transport*?

_____

_____

_____

35. Contrast endocytosis with exocytosis.

_____

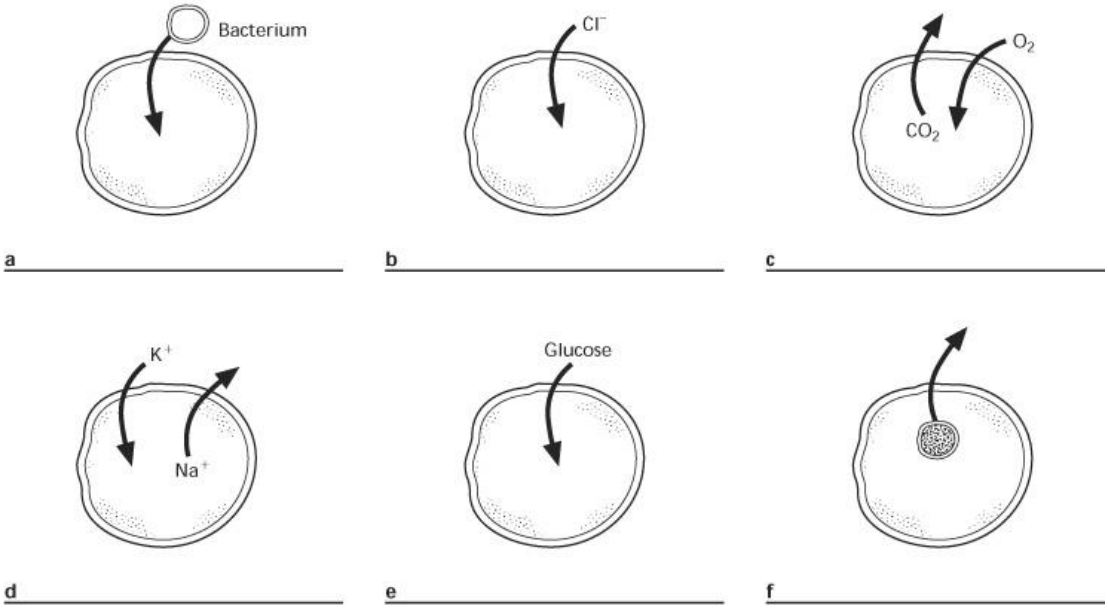
_____

_____

_____

Extra Credit, Critical Thinking.

36. The diagrams below illustrate cells carrying out different types of transport across their cell membranes. Identify each process by writing the correct term in the blank below each diagram. Then answer the question.



g. Which of the above processes are active-transport processes?

_____