Name _____ Class_____Date_____

Assessment

# Chapter Test

## Cells and Their Environment

**In the space provided, write the letter of the description that best matches each term.**

_____ 1. sodium-potassium pump

_____ 2. lipid bilayer

_____ 3. concentration gradient

_____ 4. facilitated diffusion

_____ 5. active transport

_____ 6. passive transport

_____ 7. equilibrium

a. the moving of a substance to an area of higher concentration, using energy

b. double layer that makes up a cell membrane

c. the state that exists for a substance when the substance is distributed evenly across a space

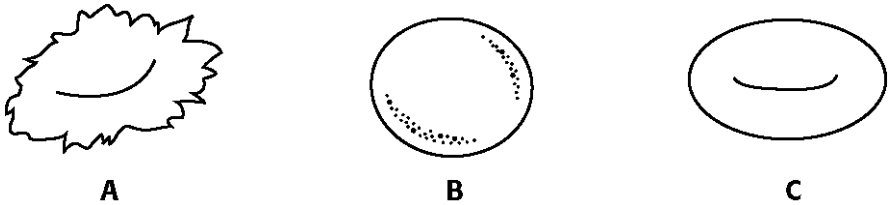
d. a form of passive transport that involves membrane proteins that aid the movement of substances

e. carrier protein that uses ATP as it moves potassium ions and sodium ions across the cell membrane

f. the moving of a substance to an area of lower concentration without any energy use

g. the difference in the concentration of a substance across a region

**Questions 8–10 refer to the figures below.**



A B C

8. Figure A illustrates a cell in a(n) _____ solution.

9. Figure B illustrates a cell in a(n) _____ solution.

10. Figure C illustrates a cell in a(n) _____ solution.

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

_____ 11. Which part of the cell membrane identifies the cell type?
a. phospholipid bilayer
b. receptor proteins
c. transport proteins
d. cell-surface markers

_____ 12. Which of these statements is true about the cell membrane?
a. The outer surfaces are polar, while the interior is nonpolar.
b. The outer surfaces are nonpolar, while the interior is polar.
c. Polar and nonpolar regions are randomly arranged throughout the membrane.
d. A layer of water within the membrane causes the membrane to form as a lipid bilayer.

_____ 13. By controlling what enters and leave a cell, the cell membrane
a. aids in maintaining homeostasis within the cell.
b. aids in maintaining homeostasis outside of the cell.
c. aids in maintaining osmosis within the cell.
d. aids in maintaining osmosis outside of the cell.

_____ 14. Which kind of molecules can pass unaided through the cell membrane?
a. small, polar molecules
b. small, nonpolar molecules
c. polar molecules of a specific shape
d. nonpolar molecules of a specific shape

_____ 15. Diffusion is the movement of a substance
a. only in liquids.
b. through only a lipid bilayer.
c. down its concentration gradient.
d. against its concentration gradient.

_____ 16. When particles move out of a cell through facilitated diffusion, the cell
a. gains energy.
b. uses energy.
c. first gains and then uses energy.
d. does not experience any change related to energy.

_____ 17. The diffusion of water through a selectively permeable membrane is called
a. endocytosis.
b. exocytosis.
c. osmosis.
d. isotonic movement.

_____ 18. Molecules that are too large to be moved through a cell membrane can be transported into the cell by
a. osmosis.
b. endocytosis.
c. exocytosis.
d. membrane proteins.

_____ 19. 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. Water will move out of the cell.
d. Both (a) and (c)

_____ 20 What is the purpose of the sodium-potassium pump?
a. to remove sodium from a cell, against its concentration gradient
b. to remove potassium from a cell, against its concentration gradient
c. to remove sodium from a cell and bring potassium into a cell, against their concentration gradients
d. Both (a) and (b)

_____ 21. Which of these always involves the movement of a vesicle?
a. diffusion
b. facilitated diffusion
c. endocytosis
d. All of the above

_____ 22 Which of the following occurs when a molecule fits into the binding site of a receptor protein on a cell's surface?
a. The receptor can open an ion channel in the cell membrane.
b. The receptor can act as an enzyme, causing chemical changes in the cytoplasm.
c. The receptor can cause the formation of a second messenger.
d. All of the above

_____ 23. Which type of membrane protein transmits information into the cell by responding to signal molecules?
a. receptor protein
b. channel protein
c. carrier protein
d. glycoprotein

_____ 24. What does a second messenger always do?
a. sends a signal to another cell
b. binds with a signal molecule from another cell
c. activates an enzyme within a cell
d. carries a signal within a cell