

1. Which is responsible for maintaining homeostasis within a living cell ?
 - a. cell membrane
 - b. cell wall
 - c. mitochondria
 - d. nucleus

2. Homeostasis within the cell means that
 - a. conditions within the cell remain nearly constant
 - b. conditions within the cell change so that they may remain the same
 - c. no changes occur within the cell
 - d. both a and b
 - e. all of the above

3. When we say that the cell membrane is selectively permeable, we mean that it allows
 - a. only water molecules to pass through
 - b. some molecules through while preventing others from entering the cell
 - c. very few molecules to leave the cell, but allows many to enter
 - d. many molecules to leave the cell, but allows few to enter

4. The solvent on both sides of the cell membrane is
 - a. glycolipid
 - b. lipid
 - c. fat
 - d. water

5. Extra cellular fluid consists of
 - a. dissolved materials
 - b. wastes
 - c. water
 - d. both a and c
 - e. all of the above

6. Which process requires energy ?
 - a. active transport
 - b. diffusion
 - c. facilitated diffusion
 - d. osmosis

7. The constant, random movement of molecules in a liquid is best called
 - a. atomic motion
 - b. Brownian motion
 - c. ionic motion
 - d. molecular motion

8. Which is true about diffusion ?
 - a. particles will move from an area where they are less concentrated to an area where they are more concentrated
 - b. particles will move from an area where they are more concentrated to an area where they are less concentrated
 - c. particles move randomly regardless of the concentration of solutions

9. The concentration of a salt solution inside a membrane is 10%. The concentration of a salt solution outside this membrane is 20%. The difference between these concentrations is called the
 - a. concentration gradient
 - b. diffusion gradient
 - c. fluid gradient
 - d. osmotic gradient

10. When water, the solvent of the cell contents, moves across the cell membrane, the process is called
 - a. active transport
 - b. diffusion
 - c. facilitated diffusion
 - d. osmosis

11. When the water concentration inside the cell is greater than that outside the cell, water moves _____
 - a. in and out of the cell equally
 - b. into the cell
 - c. out of the cell

12. When the water concentration inside the cell is less than that outside the cell, water moves _____
 - a. in and out of the cell equally
 - b. into the cell
 - c. out of the cell

13. When the water concentration inside the cell is the same as that outside the cell, water moves _____
 - a. in and out of the cell equally
 - b. into the cell
 - c. out of the cell

14. If a blood cell is placed in a hypertonic solution, water would _____ the cell and the cell would _____
- enter; burst
 - leave; shrink
 - have no net movement; stay the same
15. If a blood cell is placed in a hypotonic solution, water would _____ the cell and the cell would _____
- enter; burst
 - leave; shrink
 - have no net movement; stay the same
16. If a blood cell is placed in an isotonic solution, water would _____ the cell and the cell would _____
- enter; burst
 - leave; shrink
 - have no net movement; stay the same
17. Which cannot travel through the cell membrane by diffusion or osmosis ?
- carbon dioxide
 - glucose
 - oxygen
 - water
18. Which is true of facilitative diffusion ?
- carrier proteins change shape to allow molecules to cross the cell membrane
 - each carrier protein will recognize and transport only one type of particle
 - carrier proteins are embedded in the cell membrane
 - carrier proteins cannot transport charged particles across the membrane
 - all of the above
19. To pass through a channel protein into or out of the cell, an ion must
- be small enough to fit
 - have the correct charge
 - be soluble in lipids
 - both a and b
 - all of the above
20. When we say that substances travel along the concentration gradient, we mean they move from areas of
- high concentration to areas of low concentration
 - low concentration to areas of high concentration
21. Which process moves substances against the concentration gradient ?
- active transport
 - diffusion
 - facilitated diffusion
 - osmosis
22. Which substance(s) must be moved in or out of cells by active transport ?
- amino acids
 - glucose
 - sodium ions
 - wastes
 - all of the above
23. The molecule that provides the energy used in active transport is
- ADP
 - ADT
 - APT
 - ATP
24. Nearly one third of the energy generated by your cells is consumed by this structure
- nucleus
 - mitochondrion
 - sodium-potassium pump
 - vacuole
25. At rest, approximately how much of a person's energy is used up by the process of active transport ?
- 20%
 - 30%
 - 40%
 - 50%
26. After a nerve impulse passes, how many sodium ions must be moved out of the nerve cell by active transport ?
- 7
 - 70
 - 700
 - 7000