

1. Cholesterol in the plasma membrane is responsible for which of the following membrane properties?
 - A. receptor
 - B. recognition
 - C. fluidity
 - D. transport
 - E. all of the above
2. Which of the following accounts for the "fluid" designation given to the plasma membrane?
 - A. The movement of certain proteins and lipids within the bilayer.
 - B. The movement of substances across the membrane.
 - C. The diffusion of certain lipid-soluble substances.
 - D. The membrane is water soluble.
 - E. One of the components of the membrane is water.
3. How is the organization of the plasma membrane best described?
 - A. a double layer of phospholipid molecules in which the hydrophobic tails are directed outward, toward the cytoplasm of the cell
 - B. a double layer of phospholipid molecules with hydrophilic heads directed inward, towards each other
 - C. a double layer of phospholipid molecules with hydrophobic tails oriented inward, toward each other
 - D. a single layer of phospholipids with the hydrophobic tails pointed toward the cytoplasm and the hydrophilic tails are oriented extracellular space
 - E. a single layer of phospholipid molecules in which the hydrophobic tails of the phospholipids are oriented towards the cytoplasm and the hydrophilic tails are oriented towards the extracellular space
4. The plasma membrane allows the passage of some molecules while prohibiting the passage of others. Thus the membrane is said to be
 - A. permeable.
 - B. semipermeable.
 - C. porous.
 - D. semiporous.
5. The energy to move things into a cell by active transport is generally provided by a transport protein binding and breaking down
 - A. the sugar glucose.
 - B. a carbohydrate.
 - C. the nucleotide ATP.
 - D. a fatty acid.
 - E. a lipid.
6. If a scientist were trying to evolve a cell in a laboratory, she might begin by creating a vesicle made out of phospholipids but lacking proteins. What cellular functions would the vesicle be able to carry out?
 - A. diffusion
 - B. active transport
 - C. phagocytosis
 - D. exocytosis
 - E. all of the above
7. Carbon dioxide can cross the plasma membrane by simple diffusion. What determines the direction that carbon dioxide moves across the membrane?
 - A. the concentration of carbon dioxide on each side of the membrane
 - B. the amount of energy being produced by the cell
 - C. the amount of transport protein in the membrane
 - D. the amount of carbon dioxide outside of the cell
 - E. the amount of oxygen being exported from the cell
8. A molecule that can diffuse freely through a phospholipid bilayer is probably
 - A. uncharged and hydrophilic.
 - B. positively charged.
 - C. uncharged and small.
 - D. negatively charged.
 - E. charged and hydrophilic
9. The diffusion of water molecules across a differentially permeable membrane is termed
 - A. facilitated diffusion.
 - B. hydrolysis.
 - C. active transport.
 - D. exocytosis.
 - E. osmosis.
10. If a red blood cell is placed into a beaker of pure water, the cell will
 - A. swell until it bursts because the beaker contains a hypotonic solution.
 - B. swell until it bursts because the beaker contains a hypertonic solution.
 - C. shrivel up because the beaker contains a hypotonic solution.
 - D. shrivel up because the beaker contains a hypertonic solution.
 - E. neither shrink nor swell because the cytoplasm of cells is mostly water.

11. Channel proteins are small pores in the membrane which allow the _____ of ions across the membrane

- A. facilitated diffusion
- B. simple diffusion
- C. active transport
- D. secretion

12. Active transport is the

- A. diffusion of molecules within a cell.
- B. movement of molecules into or out of a cell against a concentration gradient.
- C. movement of molecules into or out of a cell down a concentration gradient.
- D. the movement of molecules into or out of a cell using special proteins and not requiring an expenditure of energy.
- E. rapid movement of molecules in a solution.

13. To say a cell is *selectively permeable* means

- A. that it has different sized perforations in the membrane.
- B. that it is permeable to different substances than

other cells.

- C. only certain molecules can pass through.
- D. sometimes water passes through, and sometimes it can't.
- E. permeability depends on gradient differences.

14. The cytoplasm of a certain cell, such as a neuron, which already has a high concentration of K^+ ions, can continue to take K^+ ions up into the cell. This is the result of

- A. active transport.
- B. facilitated diffusion.
- C. osmosis.
- D. endocytosis.
- E. infusion.
- F.

15. When a cell secretes a hormone, that is a form of

- A. endocytosis.
- B. exocytosis.
- C. phagocytosis.
- D. facilitated diffusion.
- E. passive transport.

16. What are the differences between active transport and facilitated diffusion ?

17. Explain why caribou have different levels of the saturation in the phospholipids in cells in their legs.

18. Biological membranes are described as being semipermeable. An example of this is that some monosaccharides such as glucose can cross the membrane, but other monosaccharides such as raffinose cannot. What is the likely explanation for the difference in the permeability of these two equally sized monosaccharides?