

B 2.1 Membrane Transport: Multiple Choice Questions

1. What is the main function of the plasma membrane?

- a) To generate ATP
- b) To act as an effective barrier
- c) To contain proteins
- d) To store genetic information

2. Which of the following does require energy to move molecules across the plasma membrane?

- a) Active transport
- b) Osmosis
- c) Simple diffusion
- d) Facilitated diffusion

3. Which type of molecule typically passes through the membrane by simple diffusion?

- a) Large polar molecules
- b) Ions such as Na^+
- c) Small, non-polar molecules
- d) Proteins

4. What is a key characteristic of molecules that pass through the plasma membrane via facilitated diffusion?

- a) They must be non-polar
- b) They must pass through a protein channel
- c) They always move against their concentration gradient
- d) They require ATP to pass through

5. What is the primary function of aquaporins in cell membranes?

- a) To transport ions across the membrane
- b) To facilitate the passive movement of water molecules
- c) To act as receptors for signal molecules
- d) To synthesize ATP

6. In osmosis, water moves from an area of _____ solute concentration to an area of _____ solute concentration.

- a) Higher, lower
- b) Equal, equal
- c) Lower, higher
- d) Higher, higher

7. What is the driving force behind osmosis?

- a) Movement of ATP
- b) Differences in water concentration
- c) Membrane permeability
- d) Changes in temperature

8. Which type of transport requires a channel to move molecules across the membrane?

- a) Simple diffusion
- b) Facilitated diffusion
- c) Active transport
- d) Osmosis

9. The Na^+/K^+ pump moves ions via:

- a) Facilitated diffusion
- b) Simple diffusion
- c) Active transport
- d) Osmosis

10. What is the full name of ATP, the molecule that provides energy for active transport?

- a) Adenine triphosphate
- b) Adenosine diphosphate
- c) Adenosine triphosphate
- d) Adenine triphosphate

Answers:

1. b)
2. a)
3. c)
4. b)
5. b)
6. c)
7. b)
8. b)
9. c)
10. c)