1. Which of the following best describes the structure of the cell membrane?
   a) A rigid layer of cellulose molecules
   b) A single layer of phospholipids with embedded proteins
   c) A double layer of phospholipids with embedded proteins
   d) A solid sheet of proteins and carbohydrates

2. The function of the cholesterol in the cell membrane is to:
   a) Transport large molecules across the membrane
   b) Provide energy to the cell
   c) Maintain membrane fluidity and stability
   d) Recognize foreign molecules

3. Which type of transport requires energy (ATP)?
   a) Simple diffusion
   b) Facilitated diffusion
   c) Osmosis
   d) Active transport

4. Which type of molecule can pass through the phospholipid bilayer without the help of a protein?
   a) Large polar molecules
   b) Small non-polar molecules
   c) Ions such as Na^+ and K^+
   d) Glucose

5. What happens to a red blood cell placed in a hypertonic solution?
   a) It swells and bursts
   b) It remains the same size
   c) It shrinks due to water loss
   d) It undergoes active transport

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6. Explain how the structure of the phospholipid bilayer contributes to its function as a selectively permeable membrane.

7. Describe the differences between passive and active transport, and give an example of each.

8. Define **facilitated diffusion** and explain why it is necessary for certain molecules.

9. Compare and contrast **endocytosis** and **exocytosis** in terms of their function and process.

10. A plant cell is placed in a **hypotonic** solution.
    a) Predict what will happen to the cell.
    b) Explain why this occurs in terms of osmosis.

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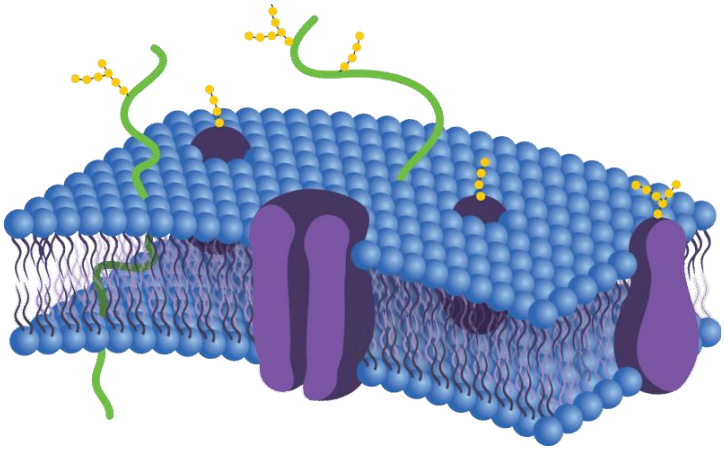
11. **Label the Cell Membrane:**
    Provide a diagram of a **phospholipid bilayer** and ask students to label:

- Phospholipid
- Hydrophilic head
- Hydrophobic tail
- Integral protein
- Peripheral protein
- Cholesterol
- Glycoprotein



12. **Transport Mechanisms:**
    Show a diagram of different types of membrane transport (diffusion, osmosis, facilitated diffusion, active transport). Ask students to:
    a) Identify each type of transport
    b) Indicate which requires ATP
    c) Indicate which involves a protein channel

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13. Cystic fibrosis is a genetic disorder that affects chloride ion channels in the cell membrane, leading to thick mucus production.
    a) Explain how faulty membrane proteins can lead to disease symptoms.
    b) Describe how ion channels normally function in membrane transport.

14. A student conducts an experiment where potato slices are placed in different salt solutions (0%, 5%, 10%).
    a) Predict what will happen to the mass of the potato slices in each solution.
    b) Explain the role of osmosis in these changes.
    c) How could the student ensure their results are reliable?

15. a) Explain why drinking **too much** pure water too quickly can be dangerous to human cells.
    b) Why do grocery stores spray water on fresh produce? How does this relate to osmosis?