

Chapter 7– Membrane Structure and Function**Membrane Structure**

1. Explain why phospholipids are amphipathic molecules.
2. Explain what freeze-fracture techniques reveal about the arrangement of proteins in membranes.
3. Describe the fluidity of the components of a cell membrane and explain how membrane fluidity is influenced by temperature and membrane composition.
4. Explain how cholesterol resists changes in membrane fluidity with temperature change.

Traffic across Membranes

5. Distinguish between peripheral and integral membrane proteins.
6. List six major functions of membrane proteins.
7. Explain the role of membrane carbohydrates in cell-cell recognition.
8. Explain how hydrophobic molecules cross cell membranes.
9. Distinguish between channel proteins and carrier proteins.
10. Define diffusion. Explain why diffusion is a spontaneous process.
11. Explain why a concentration gradient of a substance across a membrane represents potential energy.
12. Distinguish among hypertonic, hypotonic, and isotonic solutions.
13. Define osmosis and predict the direction of water movement based on differences in solute concentrations.
14. Describe how living cells with and without cell walls regulate water balance.
15. Explain how transport proteins facilitate diffusion.
16. Distinguish among osmosis, facilitated diffusion, and active transport.
17. Describe the two forces that combine to produce an electrochemical gradient.
18. Explain how an electrogenic pump creates voltage across a membrane.
19. Describe the process of cotransport.
20. Explain how large molecules are transported across a cell membrane.
21. Distinguish between pinocytosis and receptor-mediated endocytosis.