1. Define these terms:

- cell wall
- primary wall
- secondary wall
- cutin, suberin, waxes
- extracellular matrix
- tonicity
- active transport
- passive transport
- lipid bilayer
- glycoprotein
- endo- and exocytosis
- glycolipid
- fluid mosaic model
- channel protein
- transport protein
- e transfer protein
- recognition protein
- entropy
- concentration gradient

2. Define these terms:

- reactants
- enzyme/substrate complex
- product
- exer- & endergonic
- active sites
- reactions
- allosteric site
- reversible reactions
- feedback inhibition
- dynamic equilibrium
- activation energy
- equilibrium constant
- reversible and irreversible inhibitors
- metabolic pathway
- regulatory enzymes
- degradative pathways
- end products
- biosynthetic pathways
- regulatory site
- metabolites
- catalysts
- substrates
- enzymes
3. List the four types of membrane proteins.

4. Explain the significance of a phospholipid having a hydrophobic and hydrophillic end in lipid bilayers. Diagram a lipid bilayer.

5. What are the functions of cilia and flagella? Explain the 9 + 2 arrangement of cilia and flagella. If cilia and flagella have the same structure, what makes them different?

6. List the three characteristics of phospholipids that make the phospholipid bilayer fluid.

7. List and explain the three factors that effect the rate of diffusion.

8. Explain the concentration of solute and solvent and the direction of water flow in iso-, hypo-, and hypertonic fluids.

9. What three mechanisms control how cells are supplied with raw materials and get rid of waste?

10. What is the name of the mechanism used by Amoe a and white blood cells to engulf material?

11. Explain the two laws of thermodynamics using the words quality and quantity.

12. What is meant by the fact that all forms of energy are interconvertible?

13. Explain how reversible reactions work.

14. What is the difference between dynamic equilibrium and equilibrium constant.

15. Explain the role of the regulatory site on an allosteric enzyme in terms of metabolic pathway regulation.

16. Draw the structure and list the functions of ATP.

17. Explain and diagram the ATP/ADP cycle.

18. What is phosphorylation? What happens to a molecule's store of E. when it is phosphorylated by a phosphate from ATP.