

## **The Structure and Function of Large Biological Molecules Review**

### **Chapter 5**

1. Identify the four main classes of large biological molecules. Identify the class that is not a polymer.
2. a) Imagine you eat a big plate of pasta. Describe the reactions that must occur for the glucose in the pasta to be stored as glycogen in your liver.  
b) State the number of water molecules required to hydrolyze a polymer that is 10 monomers long.
3. Distinguish between carbohydrates, monosaccharides, disaccharides and polysaccharides.
4. Identify the functions of starch and glycogen. Describe the structural differences between them.
5. Compare and contrast starch and cellulose.
6. Distinguish between saturated and unsaturated fats.
7. Compare the structure of a fat (triglyceride) with that of a phospholipid.
8. Suggest a reason phospholipids and human sex hormones are considered lipids.
9. Draw and label a typical amino acid.
10. Explain the importance of having amino acids with different properties.
11. Identify the parts of an amino acid that participate in the bonds holding together secondary structure and those involved in holding together tertiary structure.
12. Find the structures of valine and glutamic acid. Propose an explanation for the dramatic effect on protein function that occurs when valine is substituted for glutamic acid.
13. Describe the relationship between protein structure and function.
14. Predict the location in a folded polypeptide where you would expect a polypeptide region containing several valine, leucine and isoleucine monomers to be located.
15. Describe how sequencing the entire genome of an organism help scientists to understand how that organism functioned.
16. Considering the function of DNA, describe why you would expect very similar organisms to have very similar genomes.