Study Guide – Chp 5 Macromolecules

1. What is the relationship between monomers and polymers?
2. What chemical reactions convert polymers to monomers and monomers to polymers?
3. What are the three most important functions of carbohydrates and give an example of each function.
4. Draw the ring structures of α glucose and β glucose.
5. What is the isomeric relationship of α glucose and β glucose? (structural, geometric, stereo)
6. Draw the structure of maltose.
7. What would be the product of the hydrolysis of maltose?
8. What would be the product of the hydrolysis of sucrose?
9. What is the critical chemical difference between starch and cellulose?
10. What is an important difference between glycogen and starch?
11. What are the three most important functions of lipids and give an example of each function.
12. What common property is shared by all lipids?
13. Diagram a saturated and unsaturated fatty acid?
14. Contrast the structure of a triglyceride and a phospholipid?
15. Which is more hydrophobic, a triglyceride or a phospholipid?
16. What common structure is shared by steroids such as estrogen and cholesterol?
17. What aspect of the chemical structure of proteins allows proteins to have some many different functions when compared to macromolecules such as polysaccharides?
18. Distinguished between the conserved portion of an amino acid and the R group.
19. Give an example of polar, non-polar and charged amino acid.
20. Give an example of an amino acid where the R group is larger that the conserved region.
21. What chemical bonds are most important for stabilizing primary, secondary and tertiary levels of protein structure.
22. What level of protein structure is stabilized by a disulfide bridge?
23. What are molecular chaperones?
24. What chemical interaction caused denatured milk proteins to form curdles?
25. What evidence supports the conclusion that primary structure determines secondary, tertiary and quaternary structure?
26. What are prions and how do they cause disease?
27. How might Creutzfeld-Jakob disease be passed from one human to another?
28. List two functions for nucleotides and two functions for nucleic acids.
29. What are the three major components of a nucleotide?
30. What type of chemical reaction would convert a nucleic acid into nucleotides?

Complete Concept Check Questions within Chapter 4
5.1(1,2,3) 5.2(1,2,3) 5.3(1,2,3) 5.4(1,2,3) 5.5(1,2)

Complete the following questions on the self quiz in the back of chapter 5. 1-10
Complete the following questions on the chapter 5 activity quiz at the textbook website. 1-25
Complete the following questions on the chapter 5 chapter quiz at the textbook website. 1-46.