

CHAPTER 3 GUIDED NOTES: THE CHEMICAL BUILDING BLOCKS OF LIFE

Raven 9th edition

1. What is the significance of functional groups?

2. What are the 4 major groups of organic compounds (macromolecules) studied in biology? _____

3. Define the following:

a. monomer _____

b. polymer _____

c. condensation reaction _____

d. hydrolysis _____

4. List several functions of proteins.

5. What are the five groups used to classify amino acids?

6. Sketch two amino acids side-by-side, on one of them label the functional groups, and then show how the two can be joined together.

7. What determines the primary structure of a protein?

8. Describe the four levels of protein structure:

a. Primary _____

b. Secondary _____

c. Tertiary _____

d. Quaternary _____

9. Explain the role of chaperone proteins in protein folding.

10. What is the potential biological significance of improper folding of proteins?

11. What happens to a protein during denaturation?

12. What are the biological roles of nucleic acids

13. What are the building blocks of nucleic acids?

14. List the two varieties of nucleic acids.

15. What other biological molecules — besides DNA & RNA — do nucleotides occur in.

16. What is the characteristic common to lipids?

17. How do phospholipids interact in an aqueous solution?

18. Make a diagram of phospholipid interactions that form membranes.

19. What makes fats hydrophobic?

20. State at least two differences between saturated and unsaturated fats.

a. _____

b. _____

21. What is the common building block of steroids.

22. What is the main function of fats?

23. What are the general roles of carbohydrates?

24. List some monosaccharides with their molecular formulas.

25. Double sugars are called

26. List the monosaccharides that form each:

a. maltose _____

b. sucrose _____

c. lactose _____

27. Polymers of sugars form _____

28. Which forms of polysaccharide is best for each function:

a. Strength of structure _____

b. Storage and sugar release _____

c. What biological theme is this addressing? _____

29. How does the alpha differ from the beta form of glucose and why is it significant to animals?

29. How do the role and structure of the following polysaccharides compare?

a. starch

b. glycogen

c. cellulose

d. chitin
