BIOCHEMISTRY PRACTICE KEY

1. Physiologically active nitrogen-containing compounds produced by plants are called \_\_\_\_\_.
2. ethers
3. polymers
4. aromatics
5. **alkaloids**
6. esters
7. Which of the following represent the addition polymer formed from the compound below? CH2=CHCl
8. 
9. 
10. 
11. 
12. 

Answer: D

1. Which of the following is not true about carbohydrates?
2. composed of sugar(s)
3. contains an aldehyde or a ketone
4. generally has several alcohol groups
5. **all of the above**
6. none of the above
7. Which group of carbohydrates cannot be hydrolyzed to give smaller molecules?
8. Trisaccharides
9. Disaccharides
10. Polysaccharides
11. **Monosaccharides**
12. Oligosaccharides
13. In a protein the \_\_\_\_\_\_\_\_\_\_ structure is the overall three-dimensional structure.
14. primary
15. secondary
16. **tertiary**
17. quaternary
18. none of the above
19. Proteins are polymers of
	1. Glucose
	2. Glycerol
	3. Amylose
	4. **Amino acids**
20. Lipids are compounds that are soluble in \_\_\_\_\_\_\_\_.
	1. **organic solvents**
	2. distilled water
	3. normal saline solution
	4. glucose solution
	5. oxygen
21. The two strands of the double stranded helix of DNA are held together by
	1. Ionic bonds
	2. **Hydrogen bonds**
	3. Peptide bonds
	4. Phosphate ester bonds
22. Identify the structural level (primary, secondary, tertiary, or quaternary) in each protein
23. The protein folds into a compact structure stabilized by interactions between R groups. **Tertiary**
24. the combination of two or more protein molecules to form an active protein **quaternary**
25. pleated sheet **secondary**
26. the peptide bonds between the amino acids **primary**
27. the structural level achieved when hydrogen bonds form between the carboxyl group of one amino acid and the amino group of a different amino acid **secondary**

1. Circle the correct answer from each pair of words that best describes ribulose, whose structure is given below

 H

 | a. aldose or **ketose**

 H-C-H

 | b. hexose or **pentose**

 C=O

 | c. **monosaccharide** or disaccharide

 H-C-OH

 |

 H-C-OH

 |

 CH2OH

1. Identify each of the following molecules as a carbohydrate, a protein, or a lipid
	1.  b.

 lipid protein

c.  d.

 lipid/steroid carbohydrate

1. What is the difference between saturated and unsaturated fats/oils? (give both structural and physical property differences)

**Saturated fats have all single bonds and form solid fats. Unsaturated fats contain double bonds and form liquid oils.**

1. What is the function of an enzyme?

**To catalyze biochemical reactions and allow them to occur at a reasonable rate at body temperature.**

1. Differentiate between monosaccharides, disaccharides, and starches.

**Monosaccharides are single sugars, disaccharides are dimers make of two sugar molecules and starches are polymers made of long chains of monosaccharides (specifically glucose).**

1. Directions: Select the key term that corresponds to each of the following definitions.

i 1. A lipid hormone composed of four rings of carbon atoms.

a 2. A protein molecule that catalyzes a biochemical reaction.

f 3. A triglyceride from a plant source that has mostly

 unsaturated fatty acids

 j 4. A lipid composed of a fatty acid and a long-chain alcohol.

c 5. An -O- bond that joins two simple sugars.

d 6. A carboxylic acid with a long hydrocarbon chain.

g 7. A lipid composed of glycerol, two fatty acids, and

 phosphoric acid.

h 8. A biological compound that is a polymer of amino acids.

b 9. A triglyceride from an animal source that has mostly

 saturated fatty acids.

e 10. A biological polymer compound that can transit genetic

 information.

a. enzyme

b. fat

c. glycoside linkage

d. fatty acid

e. nuclei acid

f. oil

g. phospholipid

h. protein

i. steroid

j. wax