Name: _____ Date: _____ Period: _____

Chemistry of Life Review Worksheet | Chapter 2 (2.3, 2.4, 2.5)

Carbon Based Molecules

1. In terms of science, what does the term "organic" mean? _____
2. What is it about Carbon's atomic structure that makes it "the building block of life"?

   _____
3. Name the four different types of organic molecules:

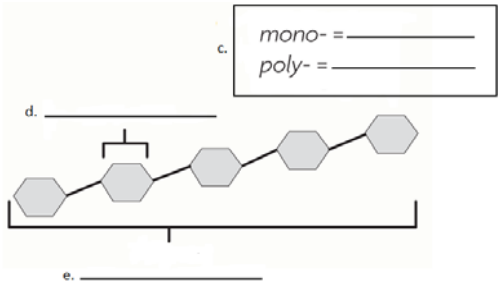
4. Define the following and label the following picture:
   a. Monomer:

      _____

      _____
   b. Polymer:

      _____

      _____



Carbohydrates

5. List the 3 elements that make up carbohydrates:
   a. _____ b. _____ c. _____
6. What is the ratio of these elements to one another? _____ : _____ : _____
7. Fill in the table for the three major polysaccharides and one monosaccharide used in biology:

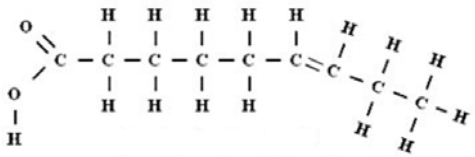
Type of Carbohydrate Monomer or Polymer?	Where found?	Characteristics/Function

Lipids

8. Name the 3 main types of lipids: _____
9. What are the main functions of lipids?
   a. _____
   b. _____
   c. _____
10. Fill in the table for lipids:

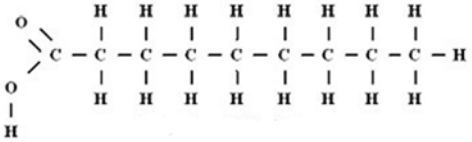
Monomer	Polymers		

11. Label as either SATURATED or UNSATURATED:



a. _____

Have fatty acids in which all carbon-carbon bonds are single bonds.



b. _____

Have fatty acids with at least one carbon-carbon double bond.

c. _____ d. _____

12. Fill in the table below:

Saturated Fats	Characteristics	Unsaturated Fats
	State (soild/liquid/gas) at room temperature	
	Commonly found in which type of organisms	
	Types of bonds connecting carbon atoms	

13. What is the structure below? Label all parts of this structure including the polar & nonpolar regions.
    a. _____

Nucleic Acids

14. Fill in the table for nucleic acids:

Monomer	Polymers	Functions

15. Fill in the blank: The arrangement of the nucleotides determines the kind of _____ created.

16. **Circle** an entire nucleotide on the DNA segment.

17. How many nucleotides are shown in the DNA segment pictured? _____

18. Name the three parts of a DNA nucleotide.

a. _____

b. _____

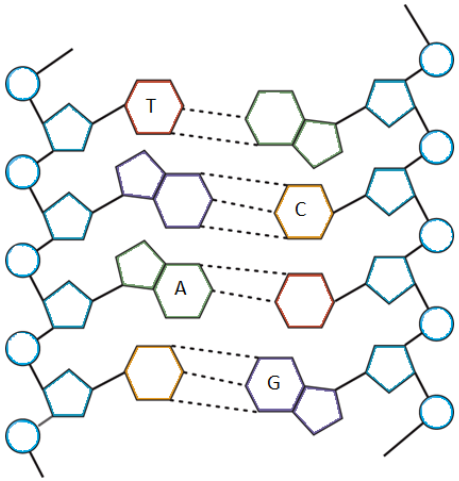
c. _____

19. Fill in the DNA molecules to the right using letters:

P (phosphate) G (guanine)

S (sugar) T (thymine)

A (adenine), C (cytosine)



Proteins

20. Fill in the table for proteins:

Monomer	Polymer	Function

21. How many different amino acids are used to build proteins in organisms? _____

22. Fill in the blanks: The _____ of amino acids determines the type of protein made. Even one incorrect amino acid placement can change a protein's _____ and _____.

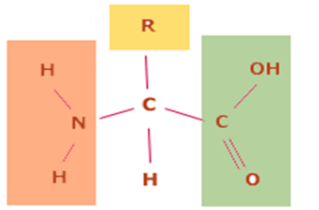
23. What is the molecule pictured below?

_____

24. Label the molecule's parts (a – c).

25. **Circle** the group on the structure (pictured below) that is different for every one of these molecules.

a. _____



b. _____ c. _____

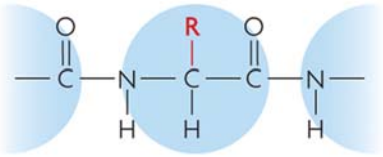
26. What type of bonds form between amino acids?

_____

27. What is another term for protein?

_____

28. Draw, on the molecules pictured below, 2 arrows where these bonds would be:



Enzymes

29. Define enzyme: _____

30. What is another term for an enzyme? _____

31. Why are enzymes important?

a. _____

b. Give two examples:

i. _____

ii. _____

32. What are 3 characteristics of enzymes?

Characteristics of Enzymes	Examples/Explanation

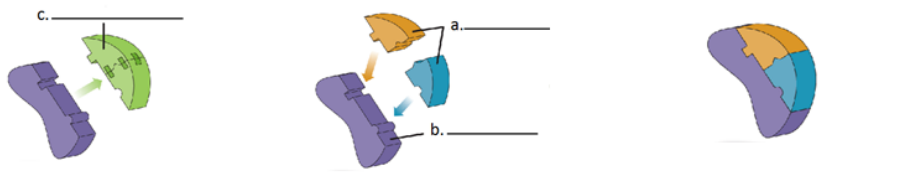
33. What causes enzymes to no longer work? _____

_____

34. Put the pictures of the reaction in order by placing a 1, 2, or 3 in the box **above** the picture.

35. Describe what is happening on the lines **below** the picture.

36. Label the letters (a – c) on the pictures below.



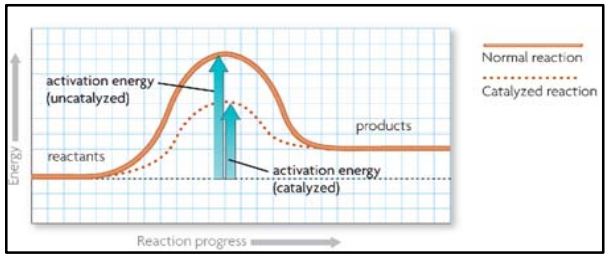
_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

37. Describe what is happening in the following graph:



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_____

Chemical Reactions

38. Match the following words with the proper definition:

_____ Chemical Reactions

_____ Reactants

_____ Products

_____ Bond Energy

_____ Equilibrium

_____ Endothermic

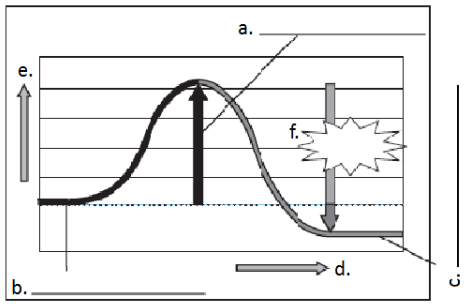
_____ Activation Energy

_____ Exothermic

a. The amount of energy that is needed for a chemical reaction to start.
b. When a reaction takes place at an equal rate in both directions.
c. Change substances into different substances by breaking and forming bonds.
d. A chemical reaction the releases more energy than it absorbs.
e. The substances changed during a chemical reaction.
f. The amount of energy that will break a bond between two atoms.
g. The substances made by the chemical reaction.
h. A chemical reaction that absorbs more energy that it releases.

39. For each of the following graphs:

a. Label each section (a – f).
b. Circle whether each graph represents an exothermic or endothermicreaction.
c. Describe what is happening in each graph to support your answer.



Exothermic or Endothermic

_____

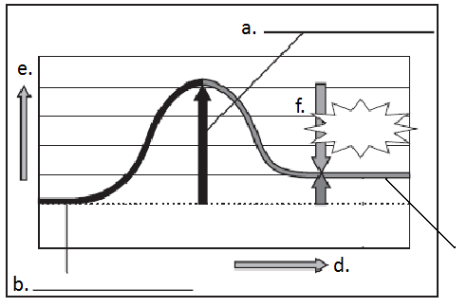
_____

_____

_____

_____

_____



Exothermic or Endothermic

_____

_____

_____

_____

_____

_____