Name _____ Class _____ Date _____

SECTION 3-1 REVIEW

CARBON COMPOUNDS

VOCABULARY REVIEW Define the following terms and provide one example for each.

1. organic compound _____

_____

2. functional group _____

_____

3. alcohol _____

_____

4. monomer _____

_____

5. polymer _____

_____

MULTIPLE CHOICE Write the correct letter in the blank.

_____ **1.** Organic compounds contain

a. carbon and usually other elements.
b. many kinds of elements except carbon.
c. only carbon.
d. only carbon and hydrogen.

_____ **2.** The number of covalent bonds a carbon atom can form with other atoms is

a. 1. **b.** 2. **c.** 4. **d.** 8.

_____ **3.** A covalent bond formed when two atoms share two pairs of electrons is called a

a. single bond. **b.** double bond. **c.** triple bond. **d.** quadruple bond.

_____ **4.** The breakdown of a polymer involves

a. hydrolysis.
b. a condensation reaction.
c. the breaking of hydrogen bonds.
d. the breaking of ionic bonds.

_____ **5.** ATP releases energy when

a. it undergoes a condensation reaction.
b. a hydroxyl group is added to it.
c. a phosphate group is added to it.
d. a phosphate group is removed from it.

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SHORT ANSWER Answer the questions in the space provided.

1. Give an example of how a functional group can affect the properties of an organic compound.

_____

_____

2. Arrange the following in order of size, from smallest to largest: polymer, monomer, carbon atom, macromolecule. _____

3. Explain how a water molecule is produced when glucose and fructose undergo a condensation reaction. _____

_____

_____

4. What are the products of the hydrolysis of ATP? What else is released during this reaction?

_____

_____

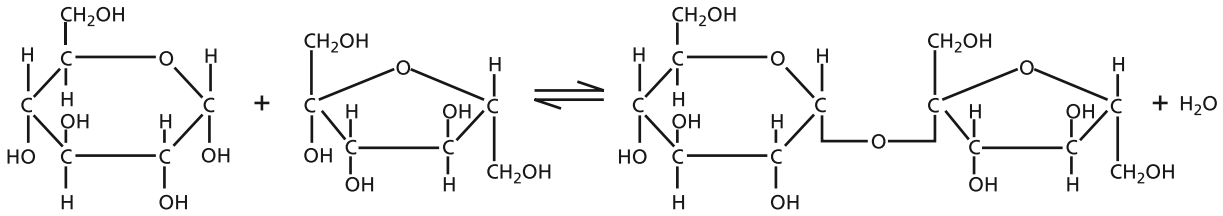
5. **Critical Thinking** How would the variety of organic compounds be different if carbon had seven electrons in its outermost energy level instead of four? _____

_____

_____

STRUCTURES AND FUNCTIONS Use the figure to answer the following questions.

The formation of sucrose from glucose and fructose is represented by the chemical reaction shown below. Notice that this reaction can proceed in either direction.



1. What are the reactants and products of the forward (left-to-right) reaction? _____

_____

2. Is the forward reaction a condensation reaction or hydrolysis? _____

3. What are the reactants and products of the reverse (right-to-left) reaction? _____

_____

4. Is the reverse reaction a condensation reaction or hydrolysis? _____