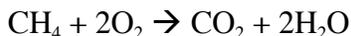


Name \_\_\_\_\_

## GENERAL CHEMISTRY REVIEW

DIRECTIONS— Answer each of the following items thoroughly in your notebook.

1. Differentiate between elements, atoms, and molecules. Use these terms to describe a single unit of water.
2. Of Earth's more than 90 naturally occurring elements, only 6 are used to compose 97% of an organism's mass. What are these 6 elements and in relative percentage do each occur?
3. Diagram and explain the scientific model of an atom.
4. What is meant when a substance is said to be radioactive? How is Carbon-14 different than Carbon-12? What is meant by half-life? How can the isotope Carbon-14 be used to date previously living things?
5. In the most basic terms (one short sentence), what occurs during a chemical reaction?
6. Balance the chemical equation below and then explain how the law of conservation of matter applies to chemical reactions.  
$$\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$$
7. Under "normal" conditions, the reaction shown below will not occur. Explain why heat is necessary.



8. Describe the difference between ionic, covalent, and hydrogen bonds in terms of the relative strength and the "behavior" of electrons.
9. Predict what would happen if an ionic compound (such as Na Cl) is added to a container of a polar substance (such as water) versus a nonpolar substance (such as oil).
10. The pH scale measures the acidity and/or the alkalinity of a solution. What ion makes a solution acidic? Basic? How many times more acidic is vinegar (pH 3) than ammonia (pH 11)?