**Honors Chem Study Guide**

**Ch. 1 sec. 1-4: Phases of Matter, Atomic Models, Molecular Models,**

**Lewis Structures**

**Read the first six bullet points on pages 56-57 (Ch. 1 sec. 13 Outcomes Review).**

**Practice Problems**

1. Consider the process of candle burning.

a. Name 2 physical changes that occur. What makes this is a physical change?

b. Name 1 chemical change that occurs. List clues that this is a chemical change.

2. Make a particle level drawing to illustrate the sublimation of dry ice (solid carbon dioxide). Include a key and a brief description.

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3. Explain what hydrogen bonding is. Use drawings to support your explanation.

4. Classify each example as an element, compound, homogeneous mixture, or heterogeneous mixture.

\_\_\_\_\_\_\_\_\_\_\_\_\_a. textbook

\_\_\_\_\_\_\_\_\_\_\_\_\_b. copper

\_\_\_\_\_\_\_\_\_\_\_\_\_c. saline solution

\_\_\_\_\_\_\_\_\_\_\_\_\_d. carbon dioxide

5. Draw a simple model of the Al-27 atom that indicates the number of protons, neutrons, and electrons. Label the nucleus, core electrons, and valence electrons.

6. Consider the element magnesium, Mg.

1. Is Mg a metal, nonmetal, or metalloid?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Name 2 elements that have properties similar to Mg.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Predict what charge ion magnesium would form.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Write the chemical formula for the ionic compound formed when the magnesium ion combines with the chloride ion. Draw Lewis structures to support your answer.

7. Draw a Lewis structure for each of the following molecules that are involved in the combustion of paraffin wax.

1. water, H2O
2. carbon dioxide, CO2
3. oxygen gas, O2
4. paraffin wax, C25H52

8. Draw a particle view picture of each of the following examples of matter. Include a key.

1. Solid aluminum (Al), an element made of atoms
2. Oxygen (O2) gas, an element made of molecules
3. Solid sodium chloride (NaCl), an ionic compound that makes a crystal lattice
4. Hydrofluoric acid, which is a liquid mixture of water and HF