Chem 130: Chemistry for Funeral Services
Problem Set 2: Due 1/31/06

Name: _____ Date: _____

Each question is worth one point. Show your work, including sketches, wherever calculations are required. Short answer questions should be written in your own words.

1. What is the electronic configuration ($1s^2$ etc) for the following four atoms:

   Lithium Nitrogen

   Chlorine Carbon

2. Use the concept of valence to explain why oxygen and sulfur have some similar chemical properties.

3. Why does carbon only have four valence electrons if it has six electrons total?

4. Draw the valence electron structures (Lewis structures) for the following four atoms:

   Magnesium Carbon

   Bromine Neon

5. Use the concept of valence to explain why non-metals tend to take on electrons in chemical reactions.

6. Write the chemical formulas for the following compounds:

   Magnesium Bromide

   Water

   Carbon Dioxide

   Iodine (diatomic molecule)

   Iron (II) Phosphate (caution! be careful with the charges!)

   Calcium Hydroxide

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7. Name the following compounds

   NaOH

   LiBr

   $CuCO_3$ (Start with the charge of the negative ion and work toward the metal)

   $Fe_3(PO_4)_2$ (Again, start with the negative charge)

   $Ba(Na)_2$ (This one is a trick question. Use your imagination.)

   MgO

8. Balance the following equations. Identify each type as synthesis, decomposition or double replacement

   $NaOH + H_2SO_4 \rightarrow H_2O + Na_2SO_4$

   $C + O_2 \rightarrow CO_2$

   $N_2 + O_2 \rightarrow NO$

   $Al + Cl_2 \rightarrow AlCl_3$

   $Mg(OH)_2 + HBr \rightarrow MgBr_2 + H_2O$

   $H_2O \rightarrow H_2 + O_2$

9. Draw the Lewis structures for each molecule in the following equation. Identify the bonding as ionic or covalent.

   $NaOH + HCl \rightarrow NaCl + H_2O$

10. Pick a common example of something that needs to be assembled. Write an "equation" describing that assembly. Explain how your equation is similar to a chemical equation. Explain how assembling your item is similar to assembling molecules.