1. Antimony has two naturally occurring isotopes of mass 120.90 amu and 122.90 amu. What fractional abundance of $^{121}_{51}Sb$ is normally present?

2. Balance the following reactions.

   a) ____ N_2O_5 (s) + ____H_2O (l) → ____HNO_3 (aq)

   b) ____Cl_2 (g) + ____KI (aq) → ____I_2 (s) + ____KCl (aq)

   c) ____$FeCl_2$ + ____NaOH → ____$Fe(OH)_3$ + ____NaCl

   d) ____$NaHCO_3$ → ____Na_2CO_3 + ____H_2O + ____CO_2

   e) ____Ca (s) + ____H_2O (l) → ____H_2 (g) + ____$Ca(OH)_2$ (aq)

3. Identify the type of chemical reaction (combination, decomposition, single-displacement or double displacement) for the reactions in question 2.

   a) _____

   b) _____

   c) _____

   d) _____

   e) _____

4. Distinguish between strong and weak electrolytes.

5. Which of the following compounds are electrolytes? Consider each substance to be mixed with water.

   a) HCl b) CO_2 c) $CaCl_2$

   d) $C_{12}H_{22}O_{11}$ (sugar) e) C_3H_7OH (rubbing alcohol) f) CCl_4 (insoluble)

6. Give the name and chemical structure of the six strong soluble bases.

7. Write the complete ionic and net ionic equation for the following molecular equations.
(Refer to solubility table in your book)

a) $2\ AgNO_3 + BaCl_2 \rightarrow 2\ AgCl + Ba(NO_3)_2$

b) $Na_2CO_3 + H_2SO_4 \rightarrow Na_2SO_4 + H_2O + CO_2$

c) $Mg + 2\ HCl \rightarrow MgCl_2 + H_2$

8. Complete and balance each of the acid/base neutralization reaction. Then write the net ionic equation.

a) $HClO_4 + Mg(OH)_2 \rightarrow$

b) $HC_2H_3O_2 + Ba(OH)_2 \rightarrow$

9. Write the complete chemical equation including phase labels.

a) Gallium metal is heated in oxygen gas, it melts and forms solid gallium(III) oxide.

b) When solutions of calcium chloride and sodium phosphate are mixed solid calcium phosphate forms and sodium chloride remains in solution.

c). Liquid disilicon hexachloride reacts with water to form solid silicon dioxide, hydrogen chloride gas and hydrogen gas.