Chapter 4 Reference Sheet

AP Chemistry

(Due with Exam IV)

Name:_____ **Hour:_____**

Concentration/Dilution

Properties of Solutions

Acids, Bases, and Salts

Solution Stoichiometry and Titration

Metathesis Reactions (solubility)

Redox Reactions

Organic Reactions

Sample Problems

Reactions

For each of the following reactions, write a balance equation for the reaction and answer the question about the reaction. Coefficients should be in terms of lowest whole numbers. Assume that solutions are aqueous unless otherwise indicated. Represent substances in solutions as ions if the substances are extensively ionized. Omit formulas for any ions or molecules that are unchanged by the reaction.

1. Carbonic acid acting on calcium carbonate.
   - What makes carbonic acid an acid?

2. Nickel oxide reacting with nitric acid.
   - Describe the pattern being observed by this reaction.

3. Aqueous strontium hydroxide added to aqueous silver nitrate.
   - What are the spectator ions in this reaction and why are they not included in the reaction?

4. Calcium metal heated in the presence of <u>air</u>.
   - How is this reaction compared to hydrocarbon combustion?

5. Solid copper metal added to concentrated nitric acid.
   - What is the oxidation number of the copper before and after the reaction?

6. Halogenation of *cis*-4-nonene with chlorine.
   - Describe the class and reaction type represented here.

7. Complete oxidation of propanol.
   - Could 2-propanone be oxidized into a carboxylic acid? Why?