Show your work for all questions; answer all parts of all questions. No work = no credit.

1. (10 pts) A compound contains only carbon, oxygen, hydrogen, and nitrogen. Combustion of 0.157 g of the compound produced 0.213 g of carbon dioxide and 0.0310 g of water. In a separate experiment, it was determined that 0.103 g of the compound produces 0.0230 g ammonia gas. (You may assume that the ammonia is the only product that contains nitrogen.)
    a. (6 pts) What is the empirical formula of the compound?

    Ans =

    b. (4 pts) It is determined that the molar mass of the compound is between 400 and 500 g; what is the molecular formula of the compound?

    Ans =

2. (10 pts) An element X forms two different chloride compounds: XCl_2 and XCl_4. The reaction of 10.00 g of XCl_2 with excess chlorine gas forms 12.55 g XCl_4.
    a. (6 pts) What is the atomic mass of element X?

    Ans =

    b. (4 pts) Identify the element that is best represented by X. Give two reasons to support your choice.
        i.

        ii.

1

3. (12 pts) Write net ionic equations for the following chemical reactions. In all cases assume a reaction occurs.

a. A solution of plumbic bromide is mixed with a solution of mercury (I) acetate.

Ans: $\rightarrow$

b. A sample of solid calcium sulfide is added to a solution of lithium phosphate and mixed.

Ans: $\rightarrow$

c. Hydrogen sulfide gas is bubbled through a solution of copper (II) sulfate.

Ans: $\rightarrow$

Show your work for all questions; answer all parts of all questions. No work = no credit.

1. (10 pts) A compound contains only carbon, oxygen, hydrogen, and nitrogen. Combustion of 0.757 g of the compound produced 0.616 g of carbon dioxide and 0.504 g of water. In a separate experiment, it was determined that 0.203 g of the compound produces 0.0638 g ammonia gas. (You may assume that the ammonia is the only product that contains nitrogen.)
    a. (6 pts) What is the empirical formula of the compound?

                                                                        Ans =

    b. (4 pts) It is determined that the molar mass of the compound is between 350 and 450 g; what is the molecular formula of the compound?

                                                                        Ans =

2. (10 pts) An element D forms two different sulfur compounds: D_2S and D_2S_3. The reaction of 12.00 g of D_2S with excess S (s) forms 13.80 g D_2S_3. (Assume the formula for solid sulfur is simply S, not S_8.)
    a. (6 pts) What is the atomic mass of element D?

                                                                        Ans =

    b. (4 pts) Identify the element that is best represented by D. Give two reasons to support your choice.
        i.

        ii.

3. (15 pts) Write net ionic equations for the following chemical reactions. In all cases assume a reaction occurs.

    a. A solution of mercuric nitrate is mixed with a solution of lead (IV) iodide.

         Ans: $\rightarrow$

    b. A sample of solid magnesium oxalate is added to a solution of ammonium chromate and mixed.

         Ans: $\rightarrow$

    c. Hydrogen chloride gas is bubbled through a solution of barium hydroxide.

         Ans: $\rightarrow$

Quiz: Ch 3 & 4
Version O (32 pts)
AP Chem

Name:
September 16, 2005
Period: 1 2 3 4

Show your work for all questions; answer all parts of all questions. No work = no credit.

1. (10 pts) A compound contains only carbon, oxygen, hydrogen, and nitrogen. Combustion of 0.09734 g of the compound produced 0.1321 g of carbon dioxide and 0.01922 g of water. In a separate experiment, it was determined that 0.167 g of the compound produces 0.0373 g ammonia gas. (You may assume that the ammonia is the only product that contains nitrogen.)
    a. (6 pts) What is the empirical formula of the compound?

    Ans =

    b. (4 pts) It is determined that the molar mass of the compound is between 200 and 300 g; what is the molecular formula of the compound?

    Ans =

2. (10 pts) An element X forms two different chloride compounds: XCl_2 and XCl_4. The reaction of 10.00 g of XCl_2 with excess chlorine gas forms 12.55 g XCl_4.
    a. (6 pts) What is the atomic mass of element X?

    b. (4 pts) Identify the element that is best represented by X: _____
       Give two reasons to support your choice.
          i.

          ii.

3. (12 pts) Write net ionic equations for the following chemical reactions. In all cases assume a reaction occurs.

    c. A solution of plumbous bromate is mixed with a solution of mercury (II) acetate.

        Ans: $\rightarrow$

    d. A sample of solid strontium hydroxide is added to a solution of aluminum sulfate and mixed.

        Ans: $\rightarrow$

    e. Hydrogen bromide gas is bubbled through a solution of silver oxalate.

        Ans: $\rightarrow$