Chem. 110 Name _____
(Last) (First)
Fall 05 Practice **EXAM 2**

Part 1

1. Draw the Lewis Dot Structure for each of the following (12 points)

a. nitrate _____

b. chlorite _____

c. carbonic acid _____

d. carbon tetra fluoride _____

/12

2. Write the formula for each of the following (12 points)

a. calcium phosphate _____

b. aluminum sulfate _____

c. copper (I) carbonate _____

d. ferrous hydroxide _____

e. nitric acid _____

f. zinc bicarbonate _____

3. Write the Name for each of the following (12 points)

a. $K_2S_2O_3$ _____

b. $H_2SO_{3(aq)}$ _____

c. NiI_3 _____

d. ICl_3 _____

e. CdC_2O_4 _____

f. $(NH_4)_2HPO_4$ _____

/24
/24pts.

Problems

For each of the following problems give the complete setups including all units. Use dinensional analysis when possible. Present your work in a neat and organized manner. If work is not shown, NO CREDIT will be given for your answer.

1. How many moles of Fe are in 33.0 grams of Fe? (5 points)

Answer: _____

2. **How many molecules of aspirin ($C_9H_7O_4$ Molar Mass = 179.15 g) contain 45.26 g of oxygen? (6 points)**

Answer: _____

3. Aspirin has the formula $C_9H_7O_4$ (Molar Mass = 179.15 g). How many grams of hydrogen would be contained in a sample of aspirin that has 5.28 X 10^{22} atoms of carbon? (6 points)

Answer: _____

4. How many atoms of O are in 32 kg of Phosphoric acid? (6 points)

Answer_____

5. How many K atoms are in 3.0 grams of K_3P? (5 points)

Answer: _____
/28pts.

6. **A 11.17 g sample of metal is reacted with excess oxygen to produce 15.97 g of the oxide MO_2. What is the molar mass of element M. (8 points)**

Answer: _____

7. A 2.00g sample of lithium metal is burned in oxygen atmosphere to produce 4.31 g of a lithium-oxygen compound. Determine the compound's empirical formula. (9 points)

Answer: _____
/17

8. (12 points) A 3.750 g sample of the compound responsible for the odor of cloves contains only C, H, and O. It is burned in a combustion chamber. The mass of CO_2 produced is 10.05 g, and the mass of water produced is 2.470 g. What is the empirical formula of phenol?

Answer: _____

9.The percent of aluminum in the compound Al_2X_3 is 18.56%. What is the molar mass of the element represented by X?? (10 points)

Answer: _____

/22pts.

10. Assume all atoms are neutral unless specified

Element (Name-Mass#)	Element nuclear symbol	Number of Neutrons	Electron configuration	Number of electrons in 3rd shell	Lewis dot structure	Number of valence electrons
Calcium-42						
		18		7		

11. Write the nuclear symbol for the an Iron atom that has 86 subatomic particles (3 points)

_____

Which of the following has the largest atomic radius:

Na or Cl ? _____

F or I ? _____

Which of the following has the highest ionization energy?

Mg or S ? _____

N or As ? _____

Which of the following has the highest electronegativity?

Al or Cl ? _____

F or I ? _____

Draw the Lewis dot structure for

Se _____ Si _____

Draw the electron configuration notation for Ge _____

Dras the orbital notation for bromine

Is the following compound ionic or covalent

$AlBr_3$ _____

$BrCl_2$ _____

/26 points