Copying the answers to this review will not benefit you. These are sample questions that you should be able to answer for any compound. Make sure you can do/solve/name all the types of examples here.

Name: Mr. Sudbury - Key Period:___ Date:_____

Test Review: Nomenclature, % Composition, & Mole Conversions

Naming/ Formula Writing Practice

1. Name the following compounds:

Ammonium Hydroxide	a. NH_4OH
Potassium Sulfite	b. K_2SO_3
Sodium Iodide	c. NaI
Iron (III) oxide	d. Fe_2O_3
Phosphorus trichloride	e. PCl_3

HINT: Make sure you can name binary ionic compounds, ternary ionic compounds, covalent compounds and acids. Also make sure that you can write a compound formula from the ions and determine what ions crissed-crossed to make up the formula. Also, when or why would you need Roman Numerals?

2. Write correct chemical formulas for each of the following:

$CaSO_4$ a. calcium sulfate
Ca^{2+} SO_4^{2-}

C_6H_6 b. hexacarbon hexahydride
6 6

$PbCl_2$ c. lead(II) chloride
Pb^{2+} Cl^{-1}

$ZnCl$ d. zinc (I) chloride
Zn^{+1} Cl^{-1}

$(NH_4)_3PO_4$ e. ammonium phosphate
NH_4^{+1} PO_4^{3-}

CuS_2 f. copper (I) sulfide
Cu^{+1} S^{-2}

Hint: If it is ionic (M=NM) look up the charges on the PT or the Polyatomic Ion Chart and criss-cross. Reduce if necessary, and make sure you use parenthesis on polyatomic ions if you criss-crossed a number larger than 1.

Molar Mass/GFM Practice

3. Find the molar mass or GFM of each of the following:

148 g/mol
_____ a. magnesium nitrate *(Hint: Write the formula first)* Mg^{+2} NO_3^{-1} $Mg(NO_3)_2$

GFM:
Mg = 1 x 24 = 24
N = 2 x 14 = 28
O = 6 x 16 = + 96
148

342 g/mol
_____ b. $C_{12}H_{22}O_{11}$

GFM:
C = 12 x 12 = 144
H = 22 x 1 = 22
O = 11 x 16 = + 176
342

400 g/mol
_____ c. iron(III) sulfate *(Hint: Write the formula first)* Fe^{3+} SO_4^{2-} => $Fe_2(SO_4)_3$

GFM:
Fe = 2 x 56 = 112
S = 3 x 32 = 96
O = 12 x 16 = + 192
400

Percentage Composition Practice

4. Find the percentage composition of $Mg(OH)_2$: GFM = 58 g

$\frac{24}{58} \times 100 =$ 41.3 % _____ % Mg $\frac{32}{58} \times 100 =$ 55.2 % _____ % O $\frac{2}{58} \times 100 =$ 3.4 % _____ % H

5. The name of the compound in the previous problem is:

magnesium Hydroxide

6. Find the percentage composition of CF_6 GFM = 126

$\frac{12}{126} \times 100 =$ 9.5 % _____ %C $\frac{114}{126} \times 100 =$ 90.5 % _____ %F

7. The name of the compound in the previous problem is :

carbon hexafluoride

8. Find the percentage composition of $CuCl_2$: GFM = 134 g

$\frac{64}{134} \times 100 =$ 47.8 % _____ % Cu $\frac{70}{134} \times 100 =$ 52.2 % _____ % Cl

9. The name of the compound in the previous problem is :

Copper (II) Chloride

Mole Conversion Practice

10. How many moles are represented by each of the following:

a. 12.0 g H_2O GFM = 18

$\frac{12.0 \text{ g } H_2O}{} \left| \frac{1 \text{ mol } H_2O}{18 \text{ g } H_2O} \right. = 0.67 \text{ mol } H_2O$

b. 305 g NaOH GFM = 40

$\frac{305 \text{ g NaOH}}{} \left| \frac{1 \text{ mol NaOH}}{40 \text{ g NaOH}} \right. = 7.63 \text{ mol } H_2O$

11. How many formula particles are represented in questions 10a and 10b above?

A) $\frac{12.0 \text{ g } H_2O}{} \left| \frac{1 \text{ mol } H_2O}{18 \text{ g } H_2O} \right| \frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol } H_2O} = 4.01 \times 10^{23} \text{ } H_2O \text{ molecules}$

or

$\frac{0.67 \text{ mol } H_2O}{} \left| \frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol } H_2O} \right. = 4.03 \times 10^{23} \text{ } H_2O \text{ molecules}$

b) $\frac{305 \text{ g NaOH}}{} \left| \frac{1 \text{ mol NaOH}}{40 \text{ g NaOH}} \right| \frac{6.022 \times 10^{23} \text{ NaOH particles}}{1 \text{ mol NaOH}} = 4.59 \times 10^{24}$ NaOH particles

or

$\frac{7.63 \text{ mol NaOH}}{} \left| \frac{6.022 \times 10^{23} \text{ NaOH particles}}{1 \text{ mol NaOH}} \right. = 4.59 \times 10^{24}$ NaOH particles