Unit #4 Review: Chemical Nomenclature

1. Be able to recognize the following types of compounds from their chemical formulas: ionic compounds, covalent compounds, binary compounds, acids, peroxides, and hydrates. Know the naming rules for each type of compound.

2. Which of the following are binary ionic compounds?
   NH_3 CO_2 MgS $Ca(OH)_2$ NaBr Zn_2C Br_2 $Ba(CN)_2$ $A\ell F_3$

3. Which of the following are acids?
   CH_4 NH_3 $HC\ell$ HNO_3 AgH H_2O HCH_3COO H_2Se HIO $Ca(HS)_2$

4. Which of the following are peroxides?
   Na_2O_2 Ag_2O H_2O_2 MgO_2 ZnO $A\ell_2O_4$ K_2O_2 CaO BaO_2

5. Which of the following are binary covalent compounds?
   H_3P CH_4 NH_3 $HC\ell$ SI_6 $A\ell H_3$ H_2O CH_2O XeF_6 C_6H_6 I_2

6. Write the chemical formulas for the following compounds:

cadmium hydroxide	arsenic (V) acetate
sulfuric acid	hydrobromic acid
barium hydride	silver chromate
phosphorus (V) chloride	sodium hypoiodite
carbon tetrafluoride	hypochlorous acid
mercury (I) hypobromite	gold (I) phosphide
hydrophosphoric acid	xenon hexafluoride
arsenic (III) oxide	chromium (II) iodite
phosphorous acid	nitrogen gas
nickel (III) perchlorate	strontium hydroxide
sodium cyanide	cesium peroxide
mercury (II) thiosulfate	lithium perchlorate
iodine heptachloride	oxalic acid
hydrogen peroxide	dinitrogen pentoxide
oxygen gas	iron (III) hydrogen sulfide
nitrogen trihydride	silicon tetrabromide
hydrofluoric acid	periodic acid
tin (IV) borate	lead (IV) thiocyanate
titanium hydrogen sulfite	boric acid
bismuth (III) dihydrogen phosphate	
copper (II) hydroxide pentahydrate	
gold (III) nitrite tetrahydrate	
sodium acetate trihydrate	

7. Provide IUPAC names for the following. If the first element is hydrogen, name the compound as an acid (unless it is a peroxide). If the first element is a non-metal, name the compound using the prefix system.

$Ni_2(Cr_2O_7)_3$	$Mn(OH)_4$
P_2O_3	CS_2
NH_4BrO	Li_2O_2
$As(BrO_3)_5$	SnC_2O_4
$Bi(IO_2)_3$	As_2O_3
HIO_4	H_3PO_3
$CuHCO_3$	Cs_2O_2
$Co(BrO_2)_3$	Au_3BO_3
F_2	$Cd(HS)_2$
$Ba(CH_3COO)_2$	$HBrO_2$
$HC\ell O$	$KHSO_4$
$Pb(C_2O_4)_2$	$MgHPO_3$
Na_2O_2	SO_2
LiH	CBr_4
$Ti(HS)_3$	$C\ell_2$
$HMnO_4$	Ag_2O_2
SnF_4	HI
$(NH_4)_3P$	$Bi(SCN)_3$
H_2SO_4	H_2O_2
H_3P	N_2O_4
HIO	HCH_3COO
$Cd_3(BO_3)_2 \cdot 5\ H_2O$	
$Bi(C\ell O_2)_3 \cdot 3\ H_2O$	
$As_2(HPO_3)_3 \cdot 7\ H_2O$	
$NH_4OCN \cdot 4\ H_2O$	

8. What are two correct names for the following compounds?

H_2S _____ and _____

H_2O _____ and _____

$PC\ell_3$ _____ and _____

P_2O_5 _____ and _____

H_3P _____ and _____

9. Follow the naming rules to determine names for the following (they are not on your ion chart):

$Hg(MnO_2)_2$ _____

$Li_2S_2O_2$ _____

$Fe(HCrO_4)_3$ _____

$Pb(SO_2)_2$ _____

Cs_3BO_2 _____