FORMULA WRITING I: BINARY COMPOUNDS

PSI CHEMISTRY NAME_____

I. Complete the chart.

			NONMETALS		
			Nitrogen	**Oxygen**	**Chlorine**
METALS	**Lithium**	*Name*			
		Formula			
	Calcium	*Name*			
		Formula			
	Aluminum	*Name*			
		Formula			

II. Write the formulas for the following:

1. Potassium hydride		2. Calcium oxide	
3. Sodium nitride		4. Potassium phosphide	
5. Magnesium sulfide		6. Lithium sulfide	

III. Name the following:

1. MgO		2. BaS	
3. NaCl		4. AlH_3	
5. $AlBr_3$			

FORMULA WRITING II: IONIC COMPOUNDS WITH POLYATOMIC IONS

A. Write the formulas.

Metals/ Polyatomic Ions	Nonmetals / Polyatomic Ions			
	Nitrate	Phosphate	Hydroxide	Sulfate
Silver				
Ammonium*				
Aluminum				
Magnesium				
Potassium				

*Polyatomic cation

B. Name these compounds.*

a) KOH		d) $Al_2(SCN)_3$		g) LiMnO4	
b) NaClO		e) $Li_2Cr_2O_7$		h) NaCN	
c) NH_4SCN		f) $CaHCO_3$		i) $KMnO_4$	

FORMULA WRITING III: BINARY COMPOUNDS WITH TRANSITION ELEMENTS

I. Complete the chart.

			NONMETALS		
			Nitrogen	**Oxygen**	**Chlorine**
METALS	**Copper (I)**	*Name*			
		Formula			
	Iron (II)	*Name*			
		Formula			
	Nickel (III)	*Name*			
		Formula			

II. Name the following:

1. CuO		2. PbS_2	
3. $CoCl_2$		4. MnH_3	
5. $TiBr_4$		6. $OsBr_3$	

MORE PRACTICE : NAMING & WRITING FORMULAS FOR IONIC COMPOUNDS USING THE STOCK SYSTEM

Write formulas for the following compounds.

1. mercury (II) iodide
2. lead (IV) bromide
3. iron (III) oxide
4. tin (IV) nitrate
5. copper (II) selenide

Name the following ionic compounds using the Stock system.

6. $Pb(NO_3)_2$
7. SnF_4
8. Cu_3N_2
9. $HgCl_2$
10. $Fe(OH)_3$
11. SnS_2

MORE PRACTICE WRITING FORMULAS FOR IONIC COMPOUNDS

1. potassium iodide

_____

2. barium chloride

_____

3. lithium bromide

_____

4. sodium hypochlorite

_____

5. iron(III) sulfate

_____

6. chromium(III) sulfide

_____

7. calcium carbonate

_____

8. sodium acetate

_____

9. cobalt(II) fluoride

_____

10. sodium phosphide

_____

11. tin(IV) oxide

_____

12. gold(III) bromide

_____

13. copper(II) iodide

_____

14. strontium chloride

_____

15. lithium acetate

_____

16. magnesium hydroxide

_____

17. nickel(II) nitrate

_____

18. silver oxide

_____

19. zinc chloride

_____

20. magnesium phosphate

_____

MORE PRACTICE NAMING IONIC COMPOUNDS

1. KOH

_____

2. LiI

_____

3. AlF_3

_____

4. $FeCl_2$

_____

5. MgO

_____

6. $Co(NO_3)_2$

_____

7. $MgSO_4$

_____

8. NH_4Cl

_____

9. $CrPO_4$

_____

10. $Ba(OH)_2$

_____

11. PbS

_____

12. Na_2CO_3

_____

13. BaF_2

_____

14. $Cu(NO_3)_2$

_____

15. AgI

_____

16. $NiSO_4$

_____

17. $Zn_3(PO_4)_2$

_____

18. Na_3N

_____

19. Cu_2CO_3

_____

20. $(NH_4)_2SO_4$

_____

FORMULA WRITING I: BINARY COMPOUNDS - ANSWERS

I. Complete the chart.

			NONMETALS		
			Nitrogen	**Oxygen**	**Chlorine**
METALS	**Lithium**	*Name*	**Lithium nitride**	**Lithium oxide**	**Lithium chloride**
		Formula	**Li_3N**	**Li_2O**	**LiCl**
	Calcium	*Name*	**Calcium nitride**	**Calcium oxide**	**Calcium chloride**
		Formula	**Ca_3N_2**	**CaO**	**$CaCl_2$**
	Aluminum	*Name*	**Aluminum nitride**	**Aluminum oxide**	**Aluminum chloride**
		Formula	**AlN**	**Al_2O_3**	**$AlCl_3$**

II. Write the formulas for the following:

1. Potassium hydride	**KH**	2. Calcium oxide	**CaO**
3. Sodium nitride	**Na_3N**	4. Potassium phosphide	**K_3P**
5. Magnesium sulfide	**MgS**	6. Lithium sulfide	**Li_2S**

III. Name the following:

1. MgO	**Magnesium oxide**	2. BaS	**Barium sulfide**
3. NaCl	**Sodium chloride**	4. AlH_3	**Aluminum hydride**
5. $AlBr_3$	**Aluminum bromide**		

FORMULA WRITING II: IONIC COMPOUNDS WITH POLYATOMIC IONS

A. Write the formulas.

Metals / Nonmetals / Polyatomic Ions	Nitrate	Phosphate	Hydroxide	Sulfate
Silver	$AgNO_3$	Ag_3PO_4	AgOH	Ag_2SO_4
Ammonium*	NH_4NO_3	$(NH_4)_3PO_4$	NH_4OH	$(NH_4)_2SO_4$
Aluminum	$Al(NO_3)_3$	$AlPO_4$	$Al(OH)_3$	$Al_2(SO_4)_3$
Magnesium	$Mg(NO_3)_2$	$Mg(PO_4)_2$	$MgOH)_2$	$MgSO_4$
Potassium	KNO_3	K_3PO_4	KOH	K_2SO_4

*Polyatomic cation

B. Name these compounds.

a) KOH	Potassium hydroxide	d) $Al(SCN)_3$	Aluminum thiocyanate	g) $LiMnO4$	Lithium permanganate
b) NaClO	Sodium hypochlorite	e) $Li_2Cr_2O_7$	Lithium dichromate	h) NaCN	Sodium cyanide
c) NH_4SCN	Ammonium thiocyanate	f) $CaHCO_3$	Calcium hydrogen carbonate	i) $KMnO_4$	Potassium permanganate

FORMULA WRITING III: BINARY COMPOUNDS WITH TRANSITION ELEMENTS

I. Complete the chart.

			NONMETALS		
			Nitrogen	Oxygen	Chlorine
METALS	Copper (I)	*Name*	Copper (I) nitride	Copper (I) oxide	Copper (I) chloride
		Formula	Cu_3N	Cu_2O	CuCl
	Iron (II)	*Name*	Iron (II) nitride	Iron (II) oxide	Iron (II) chloride
		Formula	Fe_3N_2	FeO	$FeCl_2$
	Nickel (III)	*Name*	Nickel (III) nitride	Nickel (III) oxide	Nickel (III) chloride
		Formula	NiN	Ni_2O_3	$NiCl_3$

II. Name the following:

1. CuO	Copper (II) oxide	2. PbS_2	Lead (IV) sulfide
3. $CoCl_2$	Cobalt (II) chloride	4. MnH_3	Manganese (III) hydride
5. $TiBr_4$	Titanium (IV) bromide	6. $OsBr_3$	Osmium (III) bromide

Answers – p.4

1. HgI_2
2. $PbBr_4$
3. Fe_2O_3
4. $Sn(NO_3)_4$
5. $CuSe$
5. Lead (II) nitrate
6. Ti (IV) fluoride
7. Copper (II) nitride
8. Mercury (II) chloride
9. Iron (III) hydroxide
10. Tin(IV) sulfide

Answers – p.5

1. KI
2. $BaCl_2$
3. $LiBr$
4. $NaOCl$
5. $Fe_2 (SO4)_3$
6. Cr_2S_3
7. $CaCO_3$
8. $NaC_2H_3O_2$
9. CoF_2
10. Na_3P
11. SnO_2
12. $AuBr_3$
13. CuI_2
14. $SrCl_2$
15. $LiC_2H_3O_2$
16. $Mg(OH)_2$
17. $Ni(NO_3)_2$
18. Ag_2O
19. $ZnCl_2$
20. $Mg_3 (PO4)_2$

Answers – p.6

1. Potassium hydroxide
2. Lithium iodide
3. Aluminum fluoride
4. Iron (II) chloride
5. Magnesium oxide
6. Cobalt (II) nitrate
7. Magnesium sulfate
8. Ammonium chloride
9. Chromium (III) phosphate
10. Barium hydroxide
11. Lead (II) sulfide
12. Sodium carbonate
13. Barium fluoride
14. Copper(II) nitrate
15. Silver iodide
16. Nickel (II) sulfate
17. Zinc phosphate
18. Sodium nitride
19. Copper (I) carbonate
20. Ammonium sulfate