

I. For each binary ionic compound, write the cation and anion (with the superscript charges), then predict the correct chemical formulas. Use letter a) as an example.

Cation & Anion	Chemical Formula
a) iron(III) oxide ____ Fe^{3+} ____ and O^{2-} ____	____ Fe_2O_3 ____
b) aluminum sulfide _____	_____
c) mercury(II) chloride _____	_____
d) cadmium sulfide _____	_____
e) copper(I) oxide _____	_____
f) manganese(II) oxide _____	_____
g) potassium iodide _____	_____
h) copper(II) sulfide _____	_____
i) nickel(IV) oxide _____	_____

II. Write the charge of the metal cation, then write the Stock name for these binary ionic compounds:

Cation Charge	Stock Name
a) PbO_2 _____	_____
b) Al_2S_3 _____	_____
c) SnF_4 _____	_____
d) CoO _____	_____
e) HgO _____	_____
f) FeCl_3 _____	_____
g) SnO _____	_____
h) PbCl_2 _____	_____
i) Mn_2O_3 _____	_____

III. Write the names for the following binary molecular compounds:

- a) CO_2 _____
- b) IF_7 _____
- c) OF_2 _____
- d) NI_3 _____
- e) P_4Cl_6 _____
- f) PF_5 _____

IV. Write the formulas for the following binary molecular compounds:

- a) tetraiodine octafluoride _____
- b) pentaphosphorus hexoxide _____
- c) triarsenic heptachloride _____
- d) disulfur tribromide _____
- e) hexasulfur nonachloride _____

V. Label each compound as ionic or molecular, then use the appropriate naming rules to give the correct chemical name.

Ionic or Molecular?	Chemical Name
a) Cr_2O_3 _____	_____
b) N_2O _____	_____
c) SCl_2 _____	_____
d) CaO _____	_____
e) PCl_3 _____	_____
f) Fe_3N_2 _____	_____
g) TiCl_4 _____	_____
h) CO _____	_____

VI. Write chemical formulas or names for each of the following compounds.

- a) ferrous sulfate _____ b) potassium acetate _____
c) iron(III) hypoarsenite _____ d) $\text{Cr}(\text{ClO}_4)_2$ _____
e) cupric hydroxide _____ f) aluminum sulfite _____
g) $\text{Sn}_3(\text{PO}_4)_2$ _____ h) manganese(II) nitrite _____
i) copper(I) chloride _____ j) ammonium cyanide _____
k) sodium dichromate _____ l) nickel(III) nitrate _____
m) vanadium(II) perbromate _____ n) manganese(IV) sulfide _____
o) lead(II) carbonate _____ p) AlPO_3 _____
q) KBrO_4 _____ r) $\text{Mn}_2(\text{SO}_4)_5$ _____
s) iodine pentafluoride _____ t) hydrobromic acid _____
u) hypobromous acid _____ v) cobaltous periodate _____
w) phosphorus pentafluoride _____ x) lead(II) arsenate _____

VII. Name the following substances as acids or give the correct chemical formula.

- a) $\text{HBr}_{(\text{aq})}$ _____ i) $\text{HBrO}_2_{(\text{aq})}$ _____
b) $\text{HClO}_{(\text{aq})}$ _____ j) chlorous acid _____
c) $\text{H}_2\text{S}_{(\text{aq})}$ _____ k) nitrous acid _____
d) $\text{H}_2\text{SO}_3_{(\text{aq})}$ _____ l) $\text{HIO}_4_{(\text{aq})}$ _____
e) $\text{H}_3\text{PO}_4_{(\text{aq})}$ _____ m) $\text{H}_2\text{SO}_4_{(\text{aq})}$ _____
f) carbonic acid _____ n) $\text{HNO}_3_{(\text{aq})}$ _____
g) $\text{H}_3\text{PO}_2_{(\text{aq})}$ _____ o) acetic acid _____
h) $\text{HBrO}_3_{(\text{aq})}$ _____ p) $\text{HClO}_4_{(\text{aq})}$ _____