REPORT SHEET: NAMING INORGANIC COMPOUNDS – PART 1

1. Formula Writing

Using the cation and anion provided, write the correct compound formula:

<table>
<thead>
<tr>
<th></th>
<th>Cl(^{-})</th>
<th>SO(_3)(^{2-})</th>
<th>PO(_4)(^{3-})</th>
</tr>
</thead>
<tbody>
<tr>
<td>K(^{+})</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sn(^{2+})</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fe(^{3+})</td>
<td></td>
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</tbody>
</table>

2. The following compounds contain invariable (only one cation form) metals. Provide the name or given the name, provide the formula.

KI  sodium acetate
Mg\(_3\)N\(_2\)  magnesium nitrite
CaH\(_2\)  calcium carbonate
BaCl\(_2\)  potassium sulfate
Mg(OH)\(_2\)  ammonium bromide
3. The following compounds contain variable (more than one cation form) metals. Provide the name or given the name, provide the formula.

FeF$_2$  
NiO  
Fe$_2$O$_3$  
Co$_2$(SO$_4$)$_3$  
Cu(CN)$_2$

nickel (II) hydrogen carbonate  
iron (II) phosphate  
mercury (II) nitrate  
lead (IV) acetate  
tin (II) oxide

4. The following compounds are all of the above types. See if you can name them correctly or write the correct formulas:

Sb$_2$O$_5$  
Bi(OH)$_3$  
Sn(CO$_3$)$_2$  
AgBr  
H$_2$O

zinc acetate  
titanium(IV) chloride  
manganese(II) oxide  
ammonium dichromate  
chromium(III) oxide

5. The formula of tin (IV) oxalate is Sn(C$_2$O$_4$)$_2$; tin (IV) pyrophosphate is SnP$_2$O$_4$. If polonium oxalate is PoC$_2$O$_4$, what is the formula of polonium pyrophosphate?

Ans. 

REPORT SHEET: NAMING INORGANIC COMPOUNDS – PART 2

1. The following compounds or elements do not contain metals.

   \[ \text{N}_2\text{O}_2 \]  oxygen
   \[ \text{H}_2 \]  sulfur dioxide
   \[ \text{SO}_3 \]  diphosphorus trioxide
   \[ \text{P}_2\text{O}_3 \]  carbon disulfide
   \[ \text{CF}_4 \]  dinitrogen monoxide

2. The following compounds are dissolved in water and are acids.

   \[ \text{H}_2\text{S} \]  hydrofluoric acid
   \[ \text{HNO}_3 \]  sulfurous acid
   \[ \text{HI} \]  hypochlorous acid
   \[ \text{H}_2\text{CO}_3 \]  bromous acid
   \[ \text{HBr} \]  acetic acid

3. Balance the following reactions and write out the reaction in words below it:

   \[ \_\_\text{Cl}_2\text{O}_7 + \_\_\text{H}_2\text{O} \rightarrow \_\_\text{HClO}_4 \]

   In words:
\[ \_\_\text{MnO}_2 \ + \ ___\text{HCl} \quad \rightarrow \quad ___\text{MnCl}_2 \ + \ ___\text{Cl}_2 \ + \ ___\text{H}_2\text{O} \]

In words:

\[ ___\text{AlCl}_3 \ + \ ___\text{H}_2\text{O} \quad \rightarrow \quad ___\text{Al(OH)}_3 \ + \ ___\text{HCl} \]

In words:

4. Given the following reactions in words, write balance chemical equations:

a. Nitrogen dioxide reacts with water to form nitric acid and nitrogen monoxide.

\[ \text{b. Titanium(IV)chloride reacts with water to form titanium(IV)oxide and hydrochloric acid.} \]

\[ \text{c. Ammonium dichromate decomposes to form chromium(III)oxide, water and nitrogen gas.} \]

\[ \text{d. Sodium hydroxide reacts with phosphoric acid to form sodium phosphate and water.} \]
e. Calcium phosphate reacts with carbon to form calcium phosphide and carbon monoxide.

f. Hydrogen sulfide gas reacts with oxygen to form sulfur dioxide and water.

g. Potassium chlorate decomposes to form potassium chloride and potassium perchlorate.