The Ultimate Nomenclature Review

Part A — Simple binary ionic compounds

i. Provide names for the following binary compounds:

1. KBr
2. $ZnCl_2$
3. Al_2N_3
4. Na_2S
5. Ca_3P_2
6. Be_3N_2
7. RbCl
8. FrCl
9. BaSe
10. AgCl

11. General naming rule for simple binary ionic compounds:

_____ _____ + _____

ii. Provide formulae for the following binary compounds:

1. Calcium Fluoride
2. Aluminum Oxide
3. Potassium Chloride
4. Zinc Sulphide
5. Sodium Fluoride
6. Silver Iodide
7. Magnesium Oxide
8. Strontium Chloride
9. Calcium Phosphide
10. Strontium Oxide
11. Lithium Sulphide
12. Barium Chloride

13. State the general rule to find the formula of simple binary ionic compounds:

_____

Part B — Simple binary ionic compounds: where the metal is multivalent

Provide names for the following binary compounds:

Formula	'STOCK' or IUPAC System	Classical System (if possible)
1. $PbCl_2$		
2. Fe_2O_3		
3. $SnCl_2$		
4. MnF_3		

Formula	'STOCK' or IUPAC System	Classical System (if possible)

5. CuO
6. Cu_2S
7. RhO
8. $AuBr_3$
9. Sb_2S_5
10. HgO
11. How can you tell when to use the stock, classical, or both systems?

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iii. Provide formulae for the following binary ionic compounds:

1. Mercury (I) Oxide
2. Copper (II) Sulphide
3. Iron (III) Oxide
4. Manganese (IV) Fluoride
5. Gold (III) Oxide
6. Iron (II) Bromide
7. Cobalt (II) Nitride
8. Tin (IV) Oxide
9. Cupric Nitride
10. Mercurous Oxide
11. Stannic Chloride
12. Ferric Sulphide
13. Plumbous Bromide
14. Auric Phosphide
15. Stibinous Hydride
16. Cuprous Phosphide

Part C — Simple Binary Covalent Compounds

i. Provide names for the following covalent compounds:

1. NF_3
2. XeO_3
3. OF_2
4. N_2O_5
5. $AsBr_3$
6. H_2Te
7. CO_2
8. SF_6
9. N_2O
10. P_4O_{10}
11. CCl_4
12. PH_3

13. PBr_5
14. SCl_2
15. IF_2
16. BF_3

11. Name the first 10 prefixes for the covalent compound naming system:

_____

ii. Provide formulae for the following covalent compounds:

1. Radon Tetrafluoride
2. Carbon Disulphide
3. Nitrogen Triiodide
4. Dinitrogen Triiodide
5. Tetraphosphorus Pentoxide
6. Tricarbon Octahydride
7. Dihydrogen Monoxide
8. Sulphur Hexachloride
9. Silicon Dioxide
10. Silicon Dioxide

Part D — Compounds With Polyatomic Ions

i. Provide (all of the possible) names for the following binary compounds:

1. $Ba(OH)_2$
2. NH_4Cl
3. FeC_2O_4
4. $LiClO_3$
5. $(NH_4)_3PO_4$
6. $CaCO_3$
7. $CoSO_4$
8. $Fe(NO_3)_2$
9. $NaHCO_3$
10. Cs_2SO_3
11. $LiCN$
12. $(CH_3COO)_2Pb$
13. $(NH_4)_2S$
14. $CuSO_4 \cdot 5 H_2O$
15. $KBrO_4$
16. $Sn_2(MnO_4)$
17. $PbCO_3$
18. $LiHSO_4$
19. $K_2Cr_2O_7$
20. $Sn(PO_4)_2$

ii. Provide formulae for the following binary compounds:

1. Sodium Nitrate
2. Lead (II) Chlorate
3. Iron (II) Sulphate
4. Lead (II) Phosphate

5. Copper (II) Acetate
6. Potassium Nitrate
7. Calcium Phosphate
8. Zinc Sulphate
9. Potassium Dichromate
10. Beryllium Nitrite
11. Potassium Permanganate
12. Potassium Permanganate
13. Ammonium Cyanide
14. Stannous Bromide
15. Stannic Hydride
16. Stannic Oxide Trihydrate

1.

Part E — Binary acids and Oxyacids and their related Radicals

i. Provide the correct name and related radicals for the following acids (if possible)

Formula	Acid Name	Radical Name

1. $HNO_{2(aq)}$
2. $HAsO_{4(aq)}$
3. $H_2Te_{(aq)}$
4. $H_2SO_{3(aq)}$
5. $HIO_{(aq)}$
6. $H_2Se_{(aq)}$
7. $HBrO_{4(aq)}$
8. $HCl_{(aq)}$
9. $H_4SiO_{4(aq)}$
10. $CH_3COOH_{(aq)}$
11. Name the Famous Five Acids and write down their corresponding formulas:

_____ _____ _____ _____ _____

ii. Provide formulae for the following acids:

1. Telluric Acid
2. Bromic Acid
3. Hydrofluoric Acid
4. Hydrosulphuric Acid
5. Nitric Acid
6. Perchloric Acid
7. Phosphorous acid
8. Hypoiodous Acid
9. Chlorous Acid
12. Selenous Acid

1.

Part F — Molecular Covalent Compounds

i. Fill in the blanks in the table below:

Formula	Name
1.	Dinitrogen diiodide
2. P_2O_5	
3. SF_6	
4.	Carbon Monoxide

5. The general rule for naming molecular covalent compounds is: ____ - _____ + ____ - _____

part E — Nomenclature PRACTICe quiz

The following practice quiz will consist of different compounds and acids, mixed-up.

1. Correctly name (**Stock** system, and **ClassicalNameif possible**) the following compounds:

Formula	'STOCK' or IUPAC System	Classical System
a. Fe_2S_3		
b. $Sn_2(MnO_4)_3$		
c. XeO_3		
d. N_2O_5		
e. $CuSO_4 . 5 H_20$		
f. $KClO_4$		
g. $HCl_{(aq)}$		
h. $HBrO_{4(aq)}$		
i. $NaHCO_3$		
j. $(NH_4)_2S$		
k. $CH_3CO_2H_{(aq)}$		

2. Correctly write the formulas of the compounds:

a. Lead (II) Oxide

b. Lithium Bisulphate

c. Hydroiodic Acid

d. Mercury (I) Iodide

e. Plumbous Carbonate
f. Diphosphorous Tetroxide
g. Telluric Acid
h. Cupric Nitride
i. Carbon Disulphide
j. Barium Hydroxide Octahydrate
k. Dihydrogen Monoxide
l. Carbonic Acid
m. Phosphorus Acid
n. Perbromic Acid

Bonus: What are the chemical differences between ammonia and ammonium?

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