**Exercise on Naming Elements/Compounds and Writing Chemical Formulae**

1. What is the symbol (and charge) for the following ions and polyatomic ions?
2. Silver g) hydrogen
3. Calcium h) iron (II) (ferrous)
4. Aluminium i) magnesium
5. Fluoride j) hydroxide
6. Sulfide k) carbonate
7. Phosphate l) bromide
8. For each of the following formulae, give the name of the ionic substance it represents:
9. AgCl h) PbSO4 o) (NH4)2CO3
10. NaBr i) CaCO3 p) Mg3N2
11. KF j) AlPO4 q) Pb3(PO4)2
12. AgNO3 k) Zn(OH)2 r) AlCl3
13. LiOH l) Cu(NO3)2 s) Al2O3
14. MgO m) K2S t) Al2(SO4)3
15. CuS n) Na2SO4
16. Write the formulae for the following ionic substances:
17. sodium chloride e) copper (II) oxide
18. silver bromide f) lead sulfide
19. potassium hydroxide g) iron (III) nitride
20. lithium bromide
21. Write the formulae for the following ionic substances
22. ammonium bromide e) copper (II) carbonate
23. potassium hydroxide f) iron (III) phosphate
24. sodium nitrate g) ammonium hydroxide
25. iron (II) sulfate
26. Write the formulae for the following ionic substances:
27. magnesium chloride e) potassium sulfide
28. aluminium oxide f) calcium nitride
29. iron (III) fluoride g) copper bromide
30. zinc phosphide h) mercury sulfide
31. Write the formulae for the following ionic substances
32. potassium carbonate f) copper phosphate
33. lithium sulfate g) aluminium hydroxide
34. sodium phosphate h) iron (III) nitrate
35. magnesium hydroxide i) aluminium carbonate
36. lead nitrate j) iron (III) sulfate
37. Write the formulae for the following ionic substances
38. ammonium sulfate
39. ammonium carbonate
40. ammonium phosphate

**4.2) Name and Write Chemical Formulas for Ionic Compounds**

* Read the information below about how to write and name ionic compounds
* For more support, watch video “How to write chemical formula” - <https://www.youtube.com/watch?time_continue=1&v=mQpNjm7xB30>

OR read CS5 section 5.8) Finding the Right Formula

* Complete worksheet 4.2) Exercise on Naming Elements/Compounds and Writing Chemical Formulae
* Complete worksheet “Chemical Formulas” for homework

1. **Naming Ionic Compounds**

* Ionic Compounds consist of a METAL and a NON-METAL ION
* The metal ion is always FIRST
* The non-metal will change it’s name to end with “ide”
* Some ions can have two valencies like iron – 2+ and 3+ hence use the Roman Numerals to indicate which one ie iron (II) and iron (III)

Examples:

* Sodium and chlorine becomes “sodium chloride”
* Magnesium and iodine becomes “magnesium iodide”
* Aluminium and oxygen becomes “aluminium oxide”

1. **Writing Chemical Formulas**

* Must use the cross-over rules

1. Write down SYMBOLS
2. Write down VALENCIES
3. CROSS-OVER valencies
4. BRACKETS around radicals (if number is greater than one)
5. Don’t write ONES

Examples where ions have the SAME valency:

Sodium and chlorine a) symbols: Na Cl

b) valencies 1 1

c) as both valencies are the same then chemical

formula becomes NaCl

Magnesium and oxygen a) symbols: Mg O

b) valencies 2 2

c) as both valencies are the same then chemical

formula becomes MgO

Examples where the ions have different valencies

Silver and oxygen a) symbols: Ag O

b) valencies 1 2

c) cross-over valencies Ag2O1

d) chemical formula becomes Ag2O

potassium carbonate a) symbols Al SO4

b) valencies 3 2

c) cross-over valencies Al2(SO4)3