

Checking Concepts

- (a) The name of the positive ion, the name of the negative ion
(b) The name of each non-metal element present as well as the number of atoms in each type of element in the compound
- (a) Multivalent refers to the ability of some metals to form an ion in more than one way.

- (b) Polyatomic refers to the ability of some non-metal atoms to combine to form an ion that contains two or more atoms.
(c) Ratio of ions refers to how the number of positive and negative ions present exists in a specific ratio in an ionic compound. For example, 2:3 would mean that, for every two positive ions present, there are three negative ions present.

3.

1	mono-
2	di-
3	tri-
4	tetra-
5	penta-
6	hexa-
7	hepta-
8	octa-
9	nona-
10	deca-

- (a) Sodium
(b) Sulphate
(c) Vanadium(IV)
(d) Cyanide
(e) Ammonium
(f) Oxide
- (a) Positive ion
(b) Polyatomic, negative ion
(c) Multivalent metal, positive ion
(d) Polyatomic, negative ion
(e) Polyatomic, positive ion
(f) Negative ion

6.

	Formula	Name	Number of Each Kind of Atom	Total Number of Atoms	Electric Charge on the Ion
(a)	CH_3COO^-	acetate	2 C, 3 H, 2 O	7	1-
(b)	HSO_3^-	hydrogen sulphite	1 H, 1 S, 3 O	5	1-
(c)	PO_4^{3-}	phosphate	1 P, 4 O	5	3-
(d)	CrO_4^{2-}	chromate	1 Cr, 4 O	5	2-
(e)	$\text{Cr}_2\text{O}_7^{2-}$	dichromate	2 Cr, 7 O	9	2-
(f)	MnO_4^-	permanganate	1 Mn, 4 O	5	1-

Understanding Key Ideas

- (a) NaBr
(b) CaF_2
(c) FeBr_3
(d) AuI
(e) V_2O_{10}
(f) MoN
(g) $(\text{NH}_4)_3\text{PO}_4$
(h) KNO_3
(i) $\text{Mn}(\text{ClO}_4)_2$
- (a) Lithium fluoride
(b) Magnesium iodide
(c) Iron(III) oxide
(d) Silver nitride
(e) Gold(I) nitride
(f) Platinum sulphate
(g) Ammonium carbonate
(h) Cesium nitrate
- (a) SO_2
(b) ClF
(c) NI_3
(d) N_2O
(e) N_2O_4
(f) SeF_2
- (a) Phosphorus pentafluoride
(b) Tetraphosphorus decaoxide
(c) Carbon monoxide
(d) Sulfur hexafluoride
(e) Xenon trioxide
(f) Nitrogen dioxide
(g) Oxygen difluoride

	Formula	Ionic or Covalent?	Name of Compound
(a)	Cl_2O	covalent	dichlorine monoxide
(b)	CO_2	covalent	carbon dioxide
(c)	CoO	ionic	cobalt(II) oxide
(d)	CO	covalent	carbon monoxide
(e)	PbO_2	ionic	lead(IV) oxide
(f)	MgCl_2	ionic	magnesium chloride
(g)	PtCl_2	ionic	platinum(II) chloride
(h)	SCl_2	covalent	sulfur dichloride
(i)	NaCH_3COO	ionic	sodium acetate
(j)	$\text{NH}_4\text{CH}_3\text{COO}$	ionic	ammonium acetate
(k)	NaHCO_3	ionic	sodium hydrogen carbonate

Checking Concepts

1. (a) Heptane, oxygen
- (b) CO_2 , H_2O
- (c) 7
- (d) Reacts with
2. $\text{H}_2 + \text{N}_2 \rightarrow \text{NH}_3$

Understanding Key Ideas

3. (a) $2\text{Al} + 3\text{F}_2 \rightarrow 2\text{AlF}_3$
- (b) $3\text{PbCl}_4 + 4\text{K}_3\text{PO}_4 \rightarrow 12\text{KCl} + \text{Pb}_3(\text{PO}_4)_4$
- (c) $3\text{Br}_2 + 2\text{FeI}_3 \rightarrow 3\text{I}_2 + 2\text{FeBr}_3$
- (d) $3\text{Na}_2\text{CO}_3 + 2\text{Cr}(\text{NO}_3)_3 \rightarrow$
 $6\text{NaNO}_3 + \text{Cr}_2(\text{CO}_3)_3$
- (e) $\text{Mn} + 2\text{I}_2 \rightarrow \text{MnI}_4$
- (f) $2\text{C}_2\text{H}_6 + 5\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$
- (g) $\text{K}_2\text{SO}_4 + 2\text{AgNO}_3 \rightarrow \text{Ag}_2\text{SO}_4 + 2\text{KNO}_3$
- (h) $\text{Ca}(\text{OH})_2 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O}$
- (i) $\text{Mg}_3\text{N}_2 \rightarrow 3\text{Mg} + \text{N}_2$
- (j) $2\text{Fe} + 3\text{CuCl}_2 \rightarrow 2\text{FeCl}_3 + 3\text{Cu}$
4. (a) $2\text{Li}_3\text{PO}_4 + 3\text{MgSO}_4 \rightarrow$
 $3\text{Li}_2\text{SO}_4 + \text{Mg}_3(\text{PO}_4)_2$
- (b) $\text{ZnI}_2 + 2\text{CuNO}_3 \rightarrow \text{Zn}(\text{NO}_3)_2 + 2\text{CuI}$
- (c) $\text{Hg}(\text{NO}_3)_2 + 2\text{NaHCO}_3 \rightarrow$
 $2\text{NaNO}_3 + \text{Hg}(\text{HCO}_2)_2$
- (d) $2\text{NiI}_3 + 2\text{FeS} \rightarrow \text{Ni}_2\text{S}_3 + 3\text{FeI}_2$
- (e) $2\text{Al}(\text{OH})_3 + 6\text{HF} \rightarrow 2\text{AlF}_3 + 3\text{H}_2\text{O}$
- (f) $2\text{HCl} + \text{Ba}(\text{OH})_2 \rightarrow \text{BaCl}_2 + 2\text{H}_2\text{O}$
- (g) $\text{CaBr}_2 + \text{K}_2\text{CO}_3 \rightarrow \text{CaCO}_3 + 2\text{KBr}$
- (h) $2\text{TiF}_3 + 3\text{Cs}_2\text{SO}_3 \rightarrow 6\text{CsF} + \text{Ti}_2(\text{SO}_3)_3$
- (i) $\text{BaSO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + \text{Ba}(\text{OH})_2$
- (j) $\text{CaCl}_2 + 2\text{K} \rightarrow 2\text{KCl} + \text{Ca}$
- (k) $2\text{HNO}_3 + \text{SrCO}_3 \rightarrow$
 $\text{Sr}(\text{NO}_3)_2 + \text{H}_2\text{O} + \text{CO}_2$