

## SOLVED QUESTIONS

1. What do the following symbols denote?

- (i) 2H    (ii) H<sub>2</sub>    (iii) H<sup>+</sup>

Ans.

- (i) 2H stands for two atoms of hydrogen.  
 (ii) H<sub>2</sub> stands for one molecule of hydrogen.  
 (iii) H<sup>+</sup> stands for one ion of hydrogen

2. MCl is the formula of a chloride of metal M. What is the formulae of its sulphate and hydroxide.

Ans.

In compound MCl, the valency of chlorine is -1. Therefore, valency of M is 0 + 1.

∴ Formula of the sulphate M is M<sub>2</sub>SO<sub>4</sub>. Formula of the hydroxide of M is MOH.

3. XCl<sub>2</sub> is the chloride of metal X. Write down the formula of sulphate and hydroxide of X.

Ans.

In compound XCl<sub>2</sub>, the valency of chlorine is -1.

Therefore valency of X is +2s.

∴ Formula of the sulphate of X is XSO<sub>4</sub>. Formula of the hydroxide of X is X(OH)<sub>2</sub>.

4. Write the formulae and balance the following equations.

- (a) Zinc + dil. Sulphuric acid → Zinc sulphate + Hydrogen.  
 (b) Ammonium sulphate + Calcium hydroxide → Calcium sulphate + Ammonia + Water.  
 (c) Lead dioxide + Hydrochloric acid → Lead chloride + Water + Chlorine.  
 (d) Aluminium oxide + Sulphuric acid → Aluminium sulphate + Water.

Ans.

- (a)  $Zn + H_2SO_4 \text{ (dil)} \rightarrow ZnSO_4 + H_2$   
 (b)  $(NH_4)_2SO_4 + \text{(dil)} Ca(OH)_2 \rightarrow CaSO_4 + 2NH_3 + 2H_2O$   
 (c)  $PbO_2 + 4HCl \rightarrow PbCl_2 + 2H_2O + Cl_2$   
 (d)  $Al_2O_3 + 3H_2SO_4 \rightarrow Al_2(SO_4)_3 + 3H_2O$

5. Write the formulae of the following alkalis /bases.

- (i) Ammonium hydroxide    (ii) Sodium hydroxide    (iii) Potassium hydroxide    (iv) Calcium hydroxide

Ans.    **Alkali or base**

**Formula**

(i) Ammonium hydroxide

NH<sub>4</sub>OH

(ii) Sodium hydroxide

NaOH

(iii) Potassium hydroxide

KOH

(iv) Calcium hydroxide

Ca(OH)<sub>2</sub>

6. Write the formulae of the following acids.

- (i) Carbonic acid (ii) Sulphurous acid (iii) Nitrous acid

Ans

Acid	Chemical	Formula
(i)	Carbonic acid	$H_2CO_3$
(ii)	Sulphurous acid	$H_2SO_3$
(iii)	Nitrous acid	$HNO_2$

7. Write the names of the following compounds.

- (i)  $Al_2(SO_4)_3$  (ii)  $(NH_4)_2S$  (iii)  $KClO_3$

Ans.

Formula	Compound
(i) $Al_2(SO_4)_3$	Aluminium sulphate
(ii) $(NH_4)_2S$	Ammonium sulphide
(iii) $KClO_3$	Potassium chlorate

8. Write the formulae of the following salts.

- (a) Zinc carbonate (b) Lead hydroxide (c) Sodium nitrate  
(d) Potassium zincate (e) Magnesium nitride (f) Ammonium sulphate

Ans.

- (a) Zinc Carbonate-  $ZnCO_3$  (b) Lead hydroxide-  $Pb(OH)_2$  (c) Sodium nitrate-  $NaNO_3$   
(d) Potassium zincate-  $K_2ZnO_2$  (e) Magnesium nitride-  $Mg_3N_2$  (f) Ammonium sulphate-  $(NH_4)_2SO_4$

9. (a) State the valencies and formulae of the following radicals/ions :

- (i) Ammonium (ii) Calcium (iii) Ferric (iv) Zincate

Ans.

Ion or radical	Formula	Valency
(i) Ammonium	$NH_4$	+1
(ii) Calcium	Ca	+2
(iii) Ferric	Fe	+3
(iv) Zincate	$ZnO_2$	-2

10. (a) What do you understand by the term "chemical equation"?

(b) Why should a chemical equation be always balanced?

(c) State the limitations of a chemical equation.

Ans.

- (a) Chemical equation : A chemical equation is a statement that describes a chemical change in terms of symbols and formulae.

- (b) According to the law of mass conservation “matter can neither be created, nor can it be destroyed”. This is possible only, if the total number of atoms on the reactants side is equal to the total number of atoms on the products side. Thus, a chemical equation should be always balanced.
- (c) Limitations of a chemical equation :
- (a) It does not tell about the physical state of reactants or products.
  - (b) It does not tell about the rate of the reaction.
  - (c) It does not tell whether the reaction will complete or not.
  - (d) It does not tell about the conditions necessary for the reaction.
  - (e) It does not tell whether energy is evolved or absorbed.
  - (f) It does not tell about the changes in colour, precipitation, etc.