CLASS-X chemistry

Topic - SALT chapter-2

The compound formed when hydrogen of acid is replaced by metal, is called salt.

When acid reacts with base salt is formed. During the reaction metal replaces hydrogen of an acid and forms salt.

$$Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2$$

$$NaOH + HCl \longrightarrow NaCl + H_2O$$

Zinc sulphate and sodium chloride are salts.

Sodium chloride — $NaCl$
Calcium chloride — $CaCl_2$
Magnesium chloride — $MgCl_2$
Zinc chloride — $ZnCl_2$
Sodium sulphate — Na_2SO_4
Ammonium sulphate — $(NH_4)_2SO_4$
Sodium nitrate — $NaNO_3$
Sodium acetate — CH_3COONa

These are examples of salts.

<u>Family of salts</u> — The salts having the same positive or negative ions are said to belong to a family of salts.

Example — Sodium chloride, sodium sulphate, sodium nitrate, sodium acetate etc. belong to the same family of salts called sodium salts.

Sodium chloride, Zinc chloride, calcium chloride, Aluminium chloride, copper chloride etc. belong to the same family and called chloride salts.

Sodium salt, Zinc salt, Iron salt, copper salt, chloride salts, Sulphate salt, Nitrate salts, Carbonate salts, acetate salts etc are some important families of salts.

The pH of Salt Solutions

A salt is formed by the reaction between acid and base, so one can expect that the solution of a salt in water will be neutral towards litmus. Aqueous solution of many salts are neutral in nature, having pH 7. But some salts produce acidic or basic solution on dissolving in water.

For example -

Sodium chloride solution (pH-7) is neutral, Ammonium chloride (pH-6) is acidic and sodium carbonate (pH-9) is basic in nature.

The acidic and basic nature of some salts can be explained on the basis of hydrolysis of salts.

* The process of splitting of salt by the action of water is called hydrolysis

* The salts formed by strong acid and strong base are called neutral salts. These salts give neutral solution having pH 7.
Ex- NaCl, Na_2SO_4, KCl, K_2SO_4

* The salts formed by strong acid and weak base are called acidic salts. These salts give acidic solution having pH less than 7.
Ex- NH_4Cl, $(NH_4)_2SO_4$

* The salts formed by weak acid and strong base are called basic salts. These salts give basic solution having pH more than 7.
Ex- Na_2CO_3, CH_3COONa, etc.
