## Types of chemical reaction

Some of the important types of chemical reactions are:

- 1. Combination reactions
- 2. Decomposition reactions
- 3. Displacement reactions
- 4. Double displacement reactions
- 5. Oxidation and Reduction reactions
  - Combination reactions: A reaction in which two or more reactants combine to form a single product is known as a combination reaction. Combination reaction is also called synthesis reaction.

A + B -----> AB

- Ex: 2 H <sub>2</sub> + O <sub>2</sub> ----> 2 H <sub>2</sub> O
- Ex: 2 Na + Cl <sub>2</sub> -----> 2 Na Cl
- Decomposition reactions: Those reaction in which a compound splits up into two or more simpler substances are known as decomposition reactions.

AB -----> A + B

- Ex: Ca Co <sub>3</sub> -----> Ca O + CO <sub>2</sub>
- Ex: 2 Fe SO 4 -----> Fe 2 O 3 + SO 2 + SO3
- Displacement reaction: A chemical reaction in which a more reactive element displaces a less reactive element from its aqueous salt solution. It is also called a substitution reaction.

X + YZ -----> XZ + Y

Ex: Zn + Cu SO<sub>4</sub> -----> Zn SO<sub>4</sub> + Cu

Ex: Fe + Cu SO 4 -----> Fe SO 4 + Cu

4. Double Displacement Reaction: A chemical reaction in which ions gets exchanged between two reactants which form a new compound is called double displacement reaction. It is also called a metathesis reaction.

Ex: Ba Cl <sub>2</sub> + Na SO <sub>4</sub> -----> Ba SO <sub>4</sub> + Na Cl

Precipitation Reaction: Any reaction in which an insoluble solid is formed that separates from the solution is called a precipitation reaction.

Ex: If barium chloride solution is added to copper sulphate solution, then a white precipitate of barium sulphate is produced alongwith copper chloride solution:

Ba Cl <sub>2</sub> +Cu SO <sub>4</sub> -----> Ba SO<sub>4</sub> + Cu Cl<sub>2</sub>

## 5. Oxidation and Reduction reactions:

Oxidation Reactions: (i) The addition of oxygen to a substance is called oxidation.

(ii) The removal of hydrogen from a substance is also called oxidation.

Reduction Reaction: (i) The addition of hydrogen to a substance is called reduction.

(ii) The removal of oxygen from a substance is also called reaction.

Cu O + H 2 -----> Cu + H 2 O

Redox Reaction: The oxidation and reduction reactions are also called redox reactions. In the name 'redox' the term 'red' Stands for 'reduction' and 'ox' stands for oxidation.