Revision Notes

Chapter – 5

Acids, Bases and Salts

- There are three types of Substances: Acids, Bases and Salts

- **Acids:** Acids are sour in taste.
  They are corrosive in nature. A concentrated acid cuts through clothes and eats away the wool. If it falls on the skin, it can cause burns.
  They are good conductors of electricity, as they allow the passage of electric current through them.

- **Types of Acids:**
  (i) **Mineral Acids:** These are acids prepared from minerals present in the earth's crust.
  (ii) **Organic Acids:** These are acids produced by plants and animals (except hydrochloric acid).
  (iii) **Weak Acids:** These do not dissociate completely in solution. Example: tartaric acid, lactic acid.
  (iv) **Strong Acids:** These dissociate completely in solution. Example: nitric acid, sulphuric acid.
- **Neutralization**: It is the reaction between an acid and a base which results in formation of salt and water.
  Acid + Base $\rightarrow$ Salt + Water
  Example: HCl + NaOH $\rightarrow$ NaCl + H_2O

- **Neutralisation in Everyday Life**:
  (i) **Indigestion**: Too much acid in stomach causes indigestion. It is neutralized by taking an antacid like milk of magnesia.
  (ii) **Ant sting**: When an ant bites, it injects formic acid into the skin. The effect is neutralized by rubbing moist baking soda (sodium hydrogen carbonate) or calamine (containing zinc carbonate).

(iii) **Soil treatment**: When the soil is too acidic, it is neutralized by treating with quicklime (calcium oxide) or slaked lime (calcium hydroxide).

- **Bases:** Bases are bitter in taste and soapy to touch.
  Types of Bases:
  (i) **Weak Bases:** These naturally produce less hydroxide ions in solution. Example: magnesium hydroxide, ammonium hydroxide.
  (ii) **Strong Bases:** These produce more number of hydroxide ions on dissolving in water. Example: Sodium hydroxide(NaOH), Potassium hydroxide (KOH)
- Substances which are neither acidic nor basic are called neutral.
- An acid and a base neutralise each other and form a salt. A salt may be acidic, basic or neutral in nature.
- Solutions of substances that show different colour in acidic, basic and neutral solutions are called indicators.
- **Indicators:** It is special chemical that changes its colour to indicate the presence of a chemical substance.
- It is used to confirm the presence of an acid, a base or a neutral solution.

- **Classification of Indicators:**
  Natural Indicators:
  (i) **Litmus:** It is extracted from lichens. It is available in the form of strips of paper or in the form of a solution.· Acid turns blue litmus red. Bases turn red litmus blue.
  (ii) **Turmeric:** It remains yellow in neutral and acidic solutions but turns red in alkaline solutions.
  (iii) **China rose:** It turns acidic solutions to dark pink (magenta) and basic solution to green.
  (iv) **Red cabbage:** It turns acidic solutions to red and basic solutions to blue.

  Other Indicators:
  (i) **Methyl Orange**: It gives pinkish red colour with acidic solutions and yellow colour with bases.
  (ii) **Phenolphthalein**: It is an acid-base indicator. It is colourless in acidic solutions but turns pink in alkali solutions.