CHAPTER 5: Acids Bases and Salts

Tongue has taste buds which helps up identify if a substances taste sour, bitter, sweet and salty.

- **Acids:**
  1.) The word acid has its origin from the Latin language *acer* which means sour.
  2.) Many acids are natural substances which taste sour.
  3.) Examples of acidic substances include Curd, lemon juice, orange juice and vinegar
- **Bases:**

1.) The substances which taste bitter, feel soapy to touch are called bases.
2.) Example of base is baking soda.

- **Indicator:**

1.) It is the substance used to check if a substance is acidic and basic.
2.) Indicators change color when they come in contact with an acid or base.
3.) Examples of natural indicators are Turmeric, litmus, China rose petals.

I.) Litmus:

1.) Litmus is a natural substance extracted from lichens and has purple color in distilled water.
2.) Litmus changes its color to red when it comes in contact with an acidic solution and turns blue when it comes in contact with basic solution.
3.) Generally, red and blue litmus paper strips are available to check if a substance is acidic and basic nature

II.) Phenolphthalein:

1.) It is a colorless solution at neutral Ph.
2.) Phenolphthaleinwhen comes in contact with a basic solution turns the solution pink.
3.) On mixing with an acid Phenolphthalein does not change color.

III.) Turmeric:

1.) It is a natural indicator.
2.) Turmeric turns red when mixed with a basic solution.

IV.) China Rose:

1.) It is obtained when China rose petals are socked in water and after which the water is collected and used as the indicator.
2.) China rose solution when mixed with acidic solutions gives a dark pink color and green color when mixed with basic solutions.

- **ACID RAINS:**

- Air pollutants like carbon dioxide, Sulphur dioxide and Nitrogen dioxide get mixed with rain water, acids like form carbonic acid, sulphuric acid and nitric acid are formed.
- Such rain is termed as acid rains and cause substantial damage to animals, plants and buildings

- Acids and basesare corrosive in nature. They may be harmful or may serve as an irritant to the skin.

- **NUTRILIZATION:**

1.) When an acid is mixed with a base, it leads to formation of salt and water.
2.) The acid and base in the solution cancel out each other's effect, so the solution obtained after mixing is neutral.
3.) Heat is released after neutralization.
4.) The salt formed can either be acidic, basic or neutral nature.
5.) Example: When Hydrochloric acid (HCl) is mixed with Sodiumhydroxide (NaOH), Sodium chloride (NaCl) and Water (H2O) is formed.

- **COMMON NEUTRALISATION REACTION:**
- Indigestion:

1.) The HCl present in the stomach helps in digesting food.
2.) If the amount of acid in the stomach increases it leads to painful indigestion.
3.) Antacid contain bases like magnesium hydroxide are known to neutralize the excess acid of the stomach.

- Ant bite:

1.) Ants have acidic glands in their mouth which contains formic acid.
2.) When ants' bites, it injects formic acid in the skin. This acid can be neutralized by applying paste of sodium hydrogen carbonate commonly known as baking soda.
3.) Calamine or zinc solution can also be used.

- Factory wastes:
  1.) Waste water from factories contains acids.
  2.) This water must be treated before it leaves the factories and is mixed with the surrounding water bodies as it is toxic for fishes and other aquatic organisms.
  3.) Such acid water is neutralized by adding basic substance to it.

- Soil treatment:

1.) The soil turns acidic on addition of chemical fertilizers.
2.) Such soil is not suitable for plant growth.
3.) Acidic soil is treated with bases like calcium oxide or calcium hydroxide to make it neutral.
4.) Basic soil can be treated with organic matter (compost) to make it neutral.