SCIENTIA SCIENTIA

Summary

1. Acidic substances generate H^+ ions in the medium, while basic ones liberate OH^- ions in the medium.

2. Certain dyes are used as indicators to detect the presence of acids and bases.

3. Strength of an acid depends on the concentration of hydronium ions present in a solution. Greater the numbers of hydronium ions present, greater is the strength of the acid.

4. A strong acid dissociates completely in water.
   Example: Hydrochloric acid.

5. A weak acid dissociates only partially when dissolved in water.
   Example: Acetic acid.

6. Acids react with metals like Mg, Zn, Fe to give salt and hydrogen.

7. Acids react with basic hydroxides, carbonates, sulphites and sulphides to give salt and a volatile gas such as carbon dioxide, sulphur dioxide and hydrogen sulphide, as the case may be.

8. Strength of a base depends on the concentration of hydroxyl ions.

9. A strong base dissociates completely in water.
   Example: Sodium hydroxide.

10. A weak base dissociates partially in water.
    Example: Ammonium hydroxide.

11. In neutralization reaction acids and bases neutralize each other to form corresponding salts and water.

12. Acidic and basic solutions yield ions in solutions and so are good conductors of electricity.

13. Mixing of acids and bases to water is an exothermic reaction generating heat.

14. The strength of an acid or base is expressed on a 14 point scale (ranges from 0 to 14) known as pH Scale.

15. An acidic solution has a pH less than 7 and a basic solution a pH more than 7 while a neutral solution has a pH of exactly 7.

16. Living organisms carry all metabolic activities under optimum conditions of pH. Agriculture and chemical industries also employ the pH concept.

17. Salts are important compounds that are obtained by treating an acid with a base. They are of many different types such as normal, acidic, basic, mixed, double and complex.

18. Important salts used in everyday life and industrial applications are Sodium chloride (NaCl), Sodium carbonate, (Na_2CO_3), Sodium Bicarbonate, ($NaHCO_3$), Sodium Hydroxide (NaOH).

19. Water of crystallization is the number of molecules chemically combined in a definite molecular proportion with the salt in the crystalline state. This water is responsible for the geometric shape and colour of the crystals.
    Example: Washing soda crystals or sodium carbonate decahydrate, $Na_2CO_3.10H_2O$

20. Certain substances like sodium chloride do not require the help of water to form their crystalline shape.