UNIT – 3

Acidifiers:

1. **Ammonium Chloride (NH4Cl):**
    - **Preparation:** Prepared by the reaction between ammonia (NH3) and hydrochloric acid (HCl).
    - **Assay:** Assayed by titration with a strong base, such as sodium hydroxide (NaOH).
    - **Properties:** It is a white crystalline powder with a salty taste.
    - **Medicinal Uses:**
        - Used to treat metabolic alkalosis, a condition characterized by high blood pH.
        - Acts as an expectorant in cough preparations to help clear mucus from the airways.
2. **Dilute Hydrochloric Acid (Dil. HCl):**
    - **Preparation:** Prepared by diluting concentrated hydrochloric acid with water.
    - **Assay:** Assayed by titration with a standard alkali solution (sodium hydroxide, NaOH) or assessed based on its specific gravity.
    - **Properties:** It is a colourless, odourless liquid.
    - **Medicinal Uses:**
        - Used as a gastric acidifier to aid in the digestion process.
        - An adjunct in the treatment of certain gastrointestinal disorders to lower the pH in the stomach.

Antacids:

- **Ideal Properties of Antacids:**
    - Rapid onset of action to provide quick relief.
    - Prolonged duration of action for sustained relief.
    - High neutralizing capacity.
    - Minimal adverse effects or interactions.
    - Good patient acceptability (e.g., pleasant taste).
- **Common Antacids:**
    - **Sodium Bicarbonate (NaHCO3):**
        - **Properties:** It is a white, crystalline powder with a slightly salty taste.

        - Acts as a fast-acting antacid but may lead to metabolic alkalosis if overused.
    - **Aluminium Hydroxide Gel:**
        - Provides a slow onset but long-lasting antacid effect.
    - **Magnesium Hydroxide Mixture:**
        - Acts moderately quickly and has a moderate duration of action.
        - Often used in combination with aluminium hydroxide for balanced efficacy.

Cathartics:

- **Common Cathartics:**
    - **Magnesium Sulphate:**
        - A saline cathartic that works by drawing water into the intestines and stimulating bowel movements.
    - **Sodium Orthophosphate:**
        - Acts as an osmotic cathartic, increasing the water content in the intestines.
    - **Kaolin and Bentonite:**
        - These are absorbent substances used as mild laxatives, particularly for treating diarrhoea.

Antimicrobials:

- **Mechanism of Antimicrobials:**
    - Antimicrobials inhibit the growth or kill microorganisms such as bacteria, fungi, and viruses.
    - They may work through mechanisms like disrupting cell walls, interfering with DNA replication, or inhibiting enzyme function.
- **Classification:**
    - Antimicrobials can be classified into various categories, including antibiotics, antiseptics, and disinfectants, depending on their specific mechanisms and applications.
- **Common Antimicrobial Agents:**
    - **Potassium Permanganate:**
        - Used as an antiseptic and disinfectant to clean wounds and surfaces.
    - **Boric Acid:**

    - Exhibits antifungal and antiseptic properties, often used in ointments and eye washes.
- **Hydrogen Peroxide (H2O2):**
    - Used for wound cleaning and as a disinfectant to prevent infection.
- **Chlorinated Lime (Calcium Hypochlorite):**
    - Used as a disinfectant for water purification and surface sanitation.
- **Iodine and Its Preparations:**
    - Iodine tincture and iodophors (iodine-containing compounds) are used as antiseptics and disinfectants.