Review and General Information

- The major impurities in water are: calcium, iron, silica, etc…
- Water in pharmacy should be purified distilled water.
- Demineralizing processes means removal of impurities (minerals).
- Cohobation process means: double or triple distillation.
- No preservative should be added to aromatic water.
- Dilute HCl (0.1 N) is given orally (5ml well diluted with water) for the treatment of Achlorhydria (lack of 0.1 N HCl in the stomach).
- Lime water = calcium hydroxide solution.
- Ca(OH)2 solution is prepared by cooling (for solubility).
- Ca(OH)2 solution is protected from atmosphere because:
  \[ \text{OH}^- + \text{CO}_2 \rightarrow \text{HCO}_3^- \]
  \[ \text{OH}^- + \text{HCO}_3^- \rightarrow \text{CO}_3^{2-} + \text{H}_2\text{O} \]
  \[ \text{Ca}^{++} + \text{CO}_3^{2-} \rightarrow \text{CaCO}_3 \downarrow \text{milky chalk} \]
- Lugol’s solution 5% is taken orally (0.3 ml three times daily).
- 1 g of iodine dissolves in 2950 ml of H2O.
- Tincture of iodine contains alcohol and is used externally (topical).
- Solubility of calcium hydroxide being about 170 mg / 100 ml at 15° C.
- The official concentration of lime water is based upon 25° C, a solution containing in each 100 ml, not less than 140 mg Ca(OH)2.
- Types of extracts: infusion, decoction, tincture, and resin.
- Alum (aluminum salts) are astringents.
- Zinc (zinc salts) are astringents.
- Boric acid is a weak acid (antiseptic).
- Fleet enema is a disposable rectal injection.
• Barium sulfate enema radiopaque (X-ray) purpose.

• Glycerin is a good co-solvent.

• Invert sugar = levulose + dextrose.
  
  Levulose: sucrose: dextrose
  173 : 100 : 74

• Invert sugar is more readily fermentable than sucrose.

• Invert sugar is 1.23 times as sweet as sucrose.

• Preservatives should be added to syrups.

• Preservatives e.g. benzoic acid, sodium benzoate, sodium metabisulfate, sulfuric acid, methyl-p-hydroxy benzoate.

• Suspending agents e.g. Acacia mucilage and tragacanth mucilage.

• Synthetic mucilage-like substances e.g. polyvinyl alcohol, methyl cellulose, carboxy methyl cellulose, sorbitol. (non glycogenetic used for diabetics).

• Salicylic acid collodion 10 % w/v (keratolytic agent).

• Made flexible by castor oil.

• Collodions are water-repellent protectives (corns, cuts).

• Elixirs are hydro-alcoholic liquids for oral use.

• Disadvantages of elixir: contains alcohol, which accentuates the saline taste of bromides.

• Incompatibilities of elixirs: because elixirs contain alcohol, it precipitates acacia, tragacanth, and agar from aqueous solutions.

• Glycerites (not less than 50% by weight of glycerin).

• Phenol-glycerin ear drops (NOH₂O → caustic).

• Sodium bicarbonate eardrops are not glycerites.

• Starch glycerite is an emollient preparation e.g (glysolide cream)
• Inhalations are low-pressure aerosol containers = Inhalants.

• Used in respiratory tract.

• The device may be called Inhaler or vaporizer. The controlled device may be called nebulizer.

• Alcoholic liniments may be used as rubefacients, counter irritant, mild astringents, and penetrating agents.

• Oily liniments used if massage is required.

• Calamine liniments are protective from sunburn….etc.

• Dental liniments are non-official.

• Oleo vitamins e.g A and D (official) → ramcid → unstable

  :. storage in small tight-containers, under vacuum, or inert gas, protected from light.

• Aromatic ammonia spirit cannot be mixed with codeine phosphate because of acid-base reaction → ammonia-phosphate and codeine may be↓↓ out of the solution.

• Toothache drops e.g clove oil, phenol, camphor, and creosote.
Notes:

- All the equations are important (complete).

- All the methods of preparation and examples for each method are important (enumerate)

- You must know the uses of each of the following preparations:
  (very important)
  
  - Aromatic water.
  - Burrow solution.
  - Lugol’s solution.
  - Tincture of Iodine.
  - Douches.
  - Enemas.
  - Gargles and mouthwash.
  - Acacia syrup.
  - Glycyrrhize syrup.
  - Jellies.
  - Honeys.
  - Mucilages.
  - Collodions.
  - Elixirs.
  - Glycerites.
  - Inhalations.
  - Liniments.
  - Spirits.
  - Tooth drops/nasal.
• You must also know the active ingredients in the following:
  o Tincture Iodine: Iodine, KI, NaI, and alcohol.
  o Aspirin C tablets: acetylsalicylic acid + ascorbic acid.
  o Fleet enema: phosphate salts.
  o Barium sulfate enema: barium sulfate (BaSO₄) + starch enema.
  o Lugol’s solution: Iodine + KI (no alcohol).
  o Elixir (aromatic elixir): alcohol + volatile oils.
  o Cough mixture: ammonium chloride + KI, Bromide salts, and codeine phosphate.
  o Gargle: Phenol, Menthol, NaCl, ZnCl, and antibacterial agents.
  o Nasal sprays: hormones, antihistamines, vasoconstrictors, and antibiotics. Nasal sprays should be isotonic and have the same nasal pH.

• Example of some medications:
  o Nasal sprays:

  o Cough syrup:

  o Analgesic liquid:

• Role of talc in aromatic water preparation is: