Chapter-10

Annexure
Annexure I

Total alkalinity

1. Hydrochloric acid, 0.1N
2. Methyl orange indicator, 0.05%
3. Phenolphthalein indicator
   0.5g of phenolphthalein was dissolved in 50ml of 95% ethanol and 50ml of distilled water.
4. Sodium carbonate, 0.1N

Hardness

1. EDTA solution, 0.01M
2. Buffer solution
   a. Ammonium chloride (NH4Cl) - ammonium hydroxide (NH4OH)
   b. Disodium EDTA- MgSO4. 7H2O buffer
3. Erichrome Black T indicator
   0.40g of Erichrome Black T was mix with 100g NaCl and grind.
4. Sodium sulphide solution
   5g of Na2S.9H2O in 100ml of D/W, tightly close bottle was used to prevent oxidation.
Calcium

1. EDTA solution, 0.01M
2. Sodium hydroxide, 1N
3. Murexide indicator

   0.2g of ammonium purpurate was mix with 100g NaCl

Magnesium

1. EDTA solution, 0.01M
2. Buffer solution
   a. Ammonium chloride (NH₄Cl)- ammonium hydroxide (NH₄OH)
   b. Disodium EDTA- MgSO₄. 7H₂O buffer
3. Erichrome Black T indicator

   0.40g of Erichrome Black T was mix with 100g NaCl and gr.nd.

Sodium

1. Flame photometer (CL-361 ELICO, India)
2. Stock sodium solution (100mg/L Na)

   2.542g of NaCl was dried at 140°C, and dissolved in D/W to make 1lit.
3. Intermediate sodium solution (100mg/L Na)

   Stock sodium solution was dilute 10 times.
4. Standard sodium solution (10mg/L)

   Intermediate solution was further dilited to 10 times.
5. Nitric acid
6. Hydrochloric acid
7. Hydrogen peroxide 30%
8. Ammonium hydroxide

**Potassium**
1. Flame photometer (CL-361 ELICO, India)
2. Stock potassium solution (100mg/L Na)
   - 2.542g of KCl was dried at 140°C, and dissolved in D/W to make 1lit.
3. Intermediate potassium solution (100mg/L Na)
   - Stock sodium solution was diluted 10 times.
4. Standard sodium solution (10mg/L)
   - Intermediate solution was further diluted to 10 times.

**Iron**
1. Conc. Hydrochloric acid
2. Hydroxylamine hydrochloride solution
   - 10g of Hydroxylamine hydrochloride (NH₂OH.HCl) in 100ml of D/W
3. Ammonium acetate buffer solution
   - 25g of ammonium acetate (NH₄CH₃COOH) in 75ml D/W and 70ml of glacial acetic acid.
4. Phenonthroline solution
   - 100mg of phenonthroline in 100ml of D/W and heating up to 80°C.
5. Stock iron solution (200mg Fe/L)
   1.4g of ferrous ammonium sulphate in 20ml conc. H$_2$SO$_4$ and 50ml D/W.

6. Standard iron solution (10mg Fe/L)
   Stock of Fe solution was diluted up to 20 times in D/W.

**Chloride**

1. Silver nitrate, 0.02N
2. Potassium chromate 5%

**Nitrate**

1. Conc. sulphuric acid
2. Copper sulphate solution, 10%
3. NaCl solution, 10%
4. Potassium sulphate (solid)
5. Sodium hydroxide, 10N
6. Sodium hydroxide, 5N
7. Hydrochloric acid, 0.01N
8. Boric acid+ mixed indicator
   4g boric acid (H$_3$BO$_3$) dissolved in 100ml of warm D/W. Mix alcoholic solution of 0.5% bromocresol blue and 0.1% methyl red in 2:1 ratio. This mixed indicator was added in 100ml of boric acid.
9. Phenolphthalein indicator
Studies on Microbial Diversity of Lonar Crater Lake, India. 
Annexure

Phosphorus

1. Conc. Sulphuric acid
2. Copper sulphate solution, 10%
3. Potassium sulphate
4. Sodium hydroxide, 1N
5. Sodium hydroxide, 5N
6. Phenolphthalein indicator
7. Ammonium molybdate solution
   a. 25g ammonium molybdate dissolve in 175ml D/W
   b. 280ml of conc. H₂SO₄ to 400ml of D/W. Mix both solution and dilute to 1 liter.
8. Stannous chloride solution
   2.5g of stannous chloride dissolve in 100ml glycerol by heating on a water bath.

Sulphate

1. Methyl red indicator
   Dissolve 100mg methyl red sodium salt in D/W
2. Hydrochloric acid
3. Barium chloride solution
   100g BaCl₂.2H₂O dissolve in 1L D/W.
4. Silver nitrate-nitric acid reagent
   8.5g AgNO₃ and 0.5ml conc. HNO₃ dissolve in 500ml D/W
**Dissolved oxygen**

1. Sodium thiosulphate, 0.025N
2. Alkaline potassium iodide solution
   
   100g KOH and 50g of KI was dissolved in boiled D/W
3. Manganous sulphate solution
   
   100g MnSO₄.4H₂O in 200ml of boiled D/W and filter.
4. Starch solution
   
   1g of starch was dissolved in 100ml of warm D/W and few drops of formaldehyde solution were added.
5. Conc. Sulphuric acid

**Biological oxygen demand**

1. Magnesium sulphate
   
   82.5gm MgSO₄.7H₂O in 1liter of D/W
2. Calcium chloride
   
   27.5g of anhydrous CaCl₂ in 1 liter of D/W
3. Phosphate Buffer
4. Ferric chloride
   
   0.25g of FeCl₃.6H₂O in 1liter of D/W
5. Sodium sulphite solution, 0.025N
Chemical oxygen demand

1. Potassium dichromate solution, 0.25N
2. Potassium dichromate solution, 0.025N
3. Ferrous ammonium sulphate, 0.1N
4. Ferrous ammonium sulphate, 0.01N
5. Ferroin indicator
   1.485g of Phenothroline and 0.695g of Ferrous sulphate in 100ml D/W.
6. Conc. Sulphuric acid
7. Mercuric sulphate (solid)
8. Silver sulphate (solid)