

## B.Sc. I Practicals

180 Hrs (6 Hrs/week)

### **Inorganic Chemistry**

Semimicro Analysis – cation analysis, separation and identification of ions from Groups I, II, III, IV, V and VI. Anion analysis.

### **Organic Chemistry**

Laboratory techniques

#### ***Calibration of Thermometer***

80-82° (Naphthalene), 113.5-114° (Acetanilide),  
132.5-133° (Urea), 100° (Distilled Water)

#### ***Determination of melting point***

Naphthalene 80 -82°, Benzoic acid 121.5-122°  
Urea 132.5-133°, Succinic acid 184.5-185°  
Cinnamic acid 132.5-133°, Salicylic acid 157.5-158°  
Acetanilide 113.5-114°, m-Dinitrobenzene 90°  
p-Dichlorobenzene 52°, Aspirin 135°

#### ***Determination of boiling points***

Ethanol 78°, Cyclohexane 81.4°, Toluene 110.6°, Benzene 80°

#### ***Mixed melting point determination***

Urea-Cinnamic acid mixture of various compositions (1:4, 1:1, 4:1)

#### ***Distillation***

Simple distillation of ethanol-water mixture using water condenser  
Distillation of nitrobenzene and aniline using air condenser

#### ***Crystallization***

Concept of induction of crystallization  
Phthalic acid from hot water (using fluted filter paper and stemless funnel)  
Acetanilide from boiling water  
Naphthalene from ethanol  
Benzoic acid from water

### ***Decolorisation and crystallization using charcoal***

Decolorisation of brown sugar (sucrose) with animal charcoal using gravity filtration.

Crystallization and decolorisation of impure naphthalene (100g of naphthalene mixed with 0.3 g of Congo Red using 1g decolorising carbon) from ethanol.

### ***Sublimation (Simple and Vacuum)***

Camphor, Naphthalene, Phthalic acid and Succinic acid.

### **Qualitative Analysis**

Detection of extra elements (N, S and halogens) and functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines, amides, nitro and anilide) in simple organic compounds.

## **PHYSICAL CHEMISTRY**

### ***Chemical Kinetics***

1. To determine the specific reaction rate of the hydrolysis of methyl acetate/ethyl acetate catalyzed by hydrogen ions at room temperature.
2. To study the effect of acid strength on the hydrolysis of an ester.
3. To compare the strengths of HCl and H<sub>2</sub>SO<sub>4</sub> by studying the kinetics of hydrolysis of ethyl acetate.
4. To study kinetically the reaction rate of decomposition of iodide by H<sub>2</sub>O<sub>2</sub>.

### ***Distribution Law***

1. To study the distribution of iodine between water and CCl<sub>4</sub>.
2. To study the distribution of benzoic acid between benzene and water.

### ***Colloids***

1. To prepare arsenious sulphide sol and compare the precipitating power of mono-, bi- and trivalent anions.

### ***Viscosity, Surface Tension***

1. To determine the percentage composition of a given mixture (non interacting systems) by viscosity method.
2. To determine the viscosity of amyl alcohol in water at different concentrations and calculate the excess viscosity of these solutions.
3. To determine the percentage composition of a given binary mixture by surface tension method (acetone & ethyl methyl ketone).