

**SEMESTER IV**  
**INORGANIC AND PHYSICAL CHEMISTRY**  
**PRACTICAL**

**Max. Hours: 30 Hrs**

**Course Code: U20/CHE/DSC/401/ P**

**Corse: DSC 4**

**Hours per week: 3 Hrs**

**No. Of credits: 1**

**Max. Marks: 50**

**COURSE OBJECTIVES:**

- To study the systematic analysis of anions and cations in an inorganic salt mixture

**COURSE OUTCOMES:**

CO 1: Apply the principles of common ion effect and solubility product in Semi micro qualitative analysis.

CO 2: Analyze and report ions in a mixture of salts based on their chemical reactions with group reagents

**Qualitative Analysis - Semi micro analysis of mixtures:**

Analysis of two anions and two cations in the given mixture.

Anions:  $\text{CO}_3^{2-}$ ,  $\text{S}^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{CH}_3\text{COO}^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{NO}_3^-$ ,  $\text{SO}_4^{2-}$ ,  $\text{PO}_4^{3-}$ ,  $\text{BO}_3^{3-}$

Cations:  $\text{NH}_4^+$ ,  $\text{Pb}^{2+}$ ,  $\text{Ag}^+$ ,  $\text{Bi}^{3+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Sn}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$

**Reference Books:**

1. Svehla, G, *Vogel's Qualitative Inorganic Analysis*, Pearson Education, 2012.
2. Gurdeep R. Chatwal, *College Practical Chemistry-Ii*, Himalaya Publishing House, 2005.

**SEMESTER –IV**  
**INORGANIC & PHYSICAL CHEMISTRY**  
**PRACTICAL MODEL PAPER**

**Course Code: U20/CHE/DSC/401/P**  
**Credits: 1**

**Max. Marks: 50**  
**Max. Time: 2 Hrs**

1. Write the principle behind semi micro analysis. **5M (CO1)**
2. Identify the constituent anions and cations present in the given unknown salt mixture.  
Report two anions and two cations. **25M (CO2)**
3. Record + Attendance **10M**
4. Viva voce **10 M**