

**SEMESTER-V**  
**INORGANIC AND ORGANIC CHEMISTRY-II**  
**PRACTICAL**

**Max. Hours: 30 Hrs**

**Course Code: U20/CHE/DSC/501/ P**

**Course: DSC 5**

**No. Of credits: 1**

**Hours per week: 3**

**Max. Marks: 50**

**Course Objective:**

- To equip the students with skills to determine various physical parameters using instrumentation methods and to synthesize complexes.

**Course Outcomes:**

**CO1:** Achieve the expertise in determining pH, conductivity, unknown concentration of solutions and rate constants of reactions.

**CO2:** Acquire the ability to synthesize metal complexes.

**Chemical Kinetics:**

1. Catalytic Decomposition of Hydrogen Peroxide.
2. Acid catalyzed hydrolysis of methyl acetate.
3. Kinetic study of oxidation of I<sup>-</sup> by K<sub>2</sub>S<sub>2</sub>O<sub>8</sub>.

**Conductometry:**

4. Titration of strong acid Vs strong base (HCl Vs NaOH)
5. Determination of the ionization constant of a weak acid (acetic acid).

**Colorimetry:**

6. Determination of dichromate and permanganate in a mixture using Beer Lambert's Law.
7. Job's Method for the determination of ferric thiocyanate complex.

**pHmetry:**

8. Titration of strong acid Vs strong base.
9. Determination of ionization constant of acetic acid by pH metric method.

**Preparation of Complexes:**

10. Preparation of Tetraammine copper II sulphate complex.
11. Preparation of Chloropentammine cobalt III chloride.
12. Preparation of Hexammine nickel II chloride.

**Reference Books**

1. Khosla, B. D.; Garg, V. C. & Gulati, A. *Senior Practical Physical Chemistry*, R. Chand & Co.: New Delhi (2011).
2. G, *Vogel's Qualitative Inorganic Analysis*: Pearson Education, 2012.
3. Mendham, J, *Vogel's Quantitative Chemical Analysis*: Pearson, 2009.

**SEMESTER –V**  
**INORGANIC A ORGANIC CHEMIST-II**  
**PRACTICAL QUESTION PAPER**

**Course Code: U20/CHE/DSC/501/P**

**Max. Marks: 50**

**Credits: 1**

**Max. Time: 2 Hrs**

1. Determine the rate constant for the given reaction and plot an appropriate graph.  
**25 M (CO1)**
2. Write the structure and principle involved in preparation of a given complex.  
**10M (CO 2)**
3. Record + Attendance  
**5 M**
4. Viva Voce  
**10 M**