

SEMESTER-I
INORGANIC CHEMISTRY
PRACTICAL SYLLABUS

Program: M.Sc.
Course Code :P20/CHE/DSC/101/P
Course Type : DSC-2
No. of Credits : 2

Max marks :50
No. of Hrs./Week: 4 Hrs

COURSE OUTCOME:

- CO1:** Understand the importance of Inorganic qualitative analysis and its use in research and industry
- CO2:** Complexometric titrations are particularly useful for determination of a mixture of different metal ions in solution.
- CO3:** All redox reactions involve transfer of electrons from one atom to another. Redox Titrations determines the concentration of an unknown solution, that contains an Oxidizing or reducing agent
- CO4:** Know that complexes can be synthesized by simple procedures
- CO5:** Gravimetric analysis is one of the most accurate and precise methods of macro quantitative analysis

I. EDTA BACK-TITRATIONS:

- (i) Estimation of Ni^{2+} .
- (ii) Estimation of Al^{3+} .

II. EDTA SUBSTITUTION TITRATIONS:

Estimation of Ca^{2+} .

III. REDOX TITRATIONS

- (i) Estimation of Ferrocyanide and Ferricyanide in a mixture

IV. PREPARATION OF COMPLEXES:

- (i). Hexaammine nickel (II) chloride.
- (ii). Tris (acetylacetonato) manganese.
- (iii). Tris (ethylenediamine) nickel (II) thiosulphate.
- (iv). Mercury tetrathiocyanatocobaltate (II).
- (v). Chloropentaammine cobalt (III) chloride
- (vi). Tetrammine copper (II) sulphate and estimation of NH_3 and calculation of % purity.
- (vii) One component gravimetric estimations
 - (i) Estimation of Zn^{2+}
 - (ii) Estimation of Ba^{2+} (as BaSO_4)

Reference books:

1. (i)Vogel, A.I.(1969).Text book of Quantitative Inorganic Analysis (3rd ed.). ELBS.
(ii)Jeffery,etal.(1988)Vogel’s text book of Quantitative Inorganic analysis(4th ed.).ELBS.
iii)Mendham, J., Denney, R.C., Barnes, J. D., and Thomas, M.J.K.(2002). *Vogel’s text book of Quantitative Inorganic Analysis* (6th ed.). Pearson education ltd .
2. Marr, G., and Rockett, R.W. (1972). *Practical Inorganic chemistry*.
3. Malati, M.A.(1999). Experimental Inorganic/Physical Chemistry – An Investigative integrated approach to Practical Project work.
4. Ayodhya Singh. Advanced experimental Inorganic chemistry.
5. Pass,G., andSutchiffe, H.Practical Inorganic Chemistry(2nd ed.). John Wiley & sons.

INORGANIC CHEMISTRY
PRACTICAL MODEL PAPER

Course Code :P20/CHE/DSC/101/P
Credits: 2

Max Time:3hrs
Max marks :50 marks

Answer all questions

1. Explain the principle and procedure for the Synthesis of the metal complex((CO4) **10 M**

OR

2 Explain the Principle in the Estimation of metal ions (Barium / Zinc) by Gravimetric Analysis (CO5)

3. Estimatethe amount of metal ions in a given solution by a systematic procedure of Complexometric / Redox Titration) **25 M.**
(CO1), (CO2) &(CO3)

4. Record and Attendance **5 M**

5. Viva Voce **10 M**