

SEMESTER II
PAPER 4 ANALYTICAL CHEMISTRY-II
PRACTICAL SYLLUBS

Course Code P20/CHE/DSC/204/P
Course Type: DSC-8
No. of Credits:2

Max.marks: 60
No. of Hrs. Allotted: 4 Hrs

COURSE OUTCOMES:

- CO1:** Determination of capacity of an ion exchange resin
CO2 : Understand the determination of Iron (II) Solution by knowing the change in the potential of the Fe(II) solution when added.
CO3 Acquire the practical knowledge on PH of acids and bases.
CO4 : The student will able to acquire the practical knowledge on determination of strong acid and weak acid with strong base PH meterically.
CO5 : The student will bale to understand the practical knowledge on Beer's law.

Data analysis II: Mean and standard deviation; absolute and relative errors; linear regression; covariance and correlation coefficient.

I. Ion exchange methods of Analysis:

- (i). Determination of capacity of an ion exchange resin.
(ii). Separation of Zinc and Magnesium on an anion exchange resin and estimation of Mg^{2+} and Zn^{2+}

Potentiometry:

- 1) Titration of Fe^{+2} vs $Cr_2O_7^{2-}$ (redox titration)
- 2) Titration of Cl^- vs Ag^+ (precipitation titration)
- 3) Determination of solubility product

pHmetry:

- 1) Calibration of a pH meter and measurement of pH of different solutions
- 2) Preparation of phosphate buffers
- 3) Titration of strong acid vs strong base

Polarimetry:

- 1) Determination of specific rotation of glucose and fructose
- 2) Enzyme catalysed inversion of sucrose

Colorimetry:

- 1) Verification of Beer's law and calculation of molar absorption coefficient using $CuSO_4$ and $KMnO_4$ solutions

ReferencesBooks :

1. Senior Practical Physical Chemistry: B.D. Khosla, V.C. Garg and A. Khosla
2. Experimental Physical Chemistry: V. Athawale and P. Mathur.
3. Practical Physical Chemistry: B. Vishwanathan and P.S. Raghavan.
4. Practical in Physical Chemistry: P.S. Sindhu
5. Advanced Practical Physical chemistr: J.B.Yadav
6. Vogel Text book of Quantitative Analysis, 6th edition, Pearson education Ltd. 2002

SEMESTER II
ANALYTICAL CHEMISTRY-II
MODEL PRACTICAL QUESTION PAPER

Course Code: P20/CHE/DSC/204/P
Credits: 2

Time: 3Hrs
Max. Marks:50

- 1) Write the principle involved in the Instrumentation Experiments(**CO1, CO2, CO3, CO4 & CO5**) **10 M**

- 2) a) The Equivalence point and strength of a solution by Redox and precipitation Titrations Potentiometrically (**CO2**)

OR

b) Solubility product of AgCl by Potentiometry(**CO2**)

OR

c) Determine the specific rotation of Optically Active Compounds by Polarimetry

OR

d) Verify the Beer's Law using KMnO₄ / Copper sulphate solution Colorimetrically. (**CO5**)

OR

e) Separation and estimation of Metal Ions using ion exchange resin.(**CO1**) **25 M**

- 3) Record and attendance **5 M**

- 4) Viva (**CO1, CO2, CO3, CO4 & CO5**) **10 M**