

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Analytical Chemistry)
Semester: III
Syllabus with Effect from: June - 2013

Paper Code: PS03CANC03	Total Credit: 4
Title Of Paper: Basic and Thermal of Methods	

Unit	Description in detail	Weightage (%)
I	Gravimetric and Thermal Methods of Analysis: Introduction to gravimetry, Formation and properties of precipitates; Coagulation, peptization, Co-precipitation and occlusion. Requirements, washing, drying and ignition of precipitates. Introduction to thermal methods, its classification, Factor affecting thermal analysis, TGA, DTA, DSC and thermometric titrations.	25%
II	Acid-Base Titrations: Volumetric methods of analysis: Classification, titrimetry; types of reaction, Requirements, Feasibility and titration error. Aqueous and non-aqueous acid base titrations: Theories of acid & base concepts, Role and properties of solvent, Autoprotolysis constant, derivation of pH equations, construction of titrations curves, Feasibility, Acid-base indicator and applications.	25%
III	Redox and Precipitation Titrations: Introduction to redox titrations; Redox systems, Redox potential, Nernst equation, Formal potential, Equilibrium constant, Titration curve & feasibility, Redox indicators, Iodometric and iodimetric titrations. Introduction to precipitation titrations; Feasibility and end point detection, Volhard, Fajan and Mohr's methods, Factors affecting solubility of precipitates.	25%
IV	Complexometric Titrations: Introduction, Stability constant, Ways of detecting end point, Titration curves, Equilibrium involved in EDTA titration, Types of EDTA titrations, Titration of mixture; Selectivity, Masking and demasking, Metallochromic indicators, and Applications.	25%

Basic Text & Reference Books:-

- Principles of Instrumental analysis-by D.A. Skoog & F.J. Holler & T.A. NiemenbySaunders College Publishers, 5th edition, 1998
- Analytical Chemistry: Principles-by J.H. Kennedy, Saunders College Publishers, 2nd edition, 1990
- Introduction to Chemical Analysis-by R.D. Braun, Mc-Graw Hill Book Co.2nd edition 1995
- Vogel's Textbook of Quantitative Chemical Analysis-by G.H. Jeffery, J. Mendham, R.C. Denney, 5th edition, 1998.
- Analytical Chemistry - by G.D. Christian, John Wiley & Sons, 3rd edition.
- Quantitative Analysis-by R.A. Day, Prantice hall of India(P)Ltd., New Delhi,6th edition,1993

