

CA P 518: ANALYTICAL CHEMISTRY PRACTICALS - II

(A minimum of twelve experiments are to be carried out)

Course Outcomes

- Student will understand and able to handle conductometry, potentiometry and spectrometry for various determinations.
- Handle and apply spectroscopic techniques as analytical tool in chemistry.
- Analyse samples by polarographic techniques.
- Study polymer preparation, kinetics of polymerization and their analysis.

1. Conductometric determination of total acidity of waste water.
2. Conductometric determination of chloride content of a sample of industrial effluent.
3. Conductometric determination of total alkalinity of waste water.
4. Conductometric determination of total acidity of waste water.
5. Conductometric determination of chloride content of a sample of industrial effluent.
6. Determination of pH of hair shampoos by potentiometric titration.
7. Potentiometric determination of equivalent weight and Ka of a known acid.
8. Determination of sulphadiazine by potentiometry.
9. Determination of pH of hair shampoos by potentiometric titration.
10. Assay of iron in pharmaceutical preparation by potentiometric titration with $\text{Ce}(\text{SO}_4)_2$.
11. Determination of Phosphate in domestic waste water by spectrophotometry.
12. Determination of $\text{NH}_3\text{-N}/\text{NO}_2\text{-N}/\text{NO}_3\text{-N}$ in soil & waste waters by spectrophotometry.
13. Analysis of mercury/lead in industrial effluents by spectrophotometry.
14. Determination of ascorbic acid in guava/bitter melon by titrimetry and spectrophotometry.
15. Catalytic determination of iodide/selenium by spectrophotometry.
16. Enzymatic determination of glucose in blood by spectrophotometry.
17. Estimation of blood cholesterol by spectrophotometry.
18. Determination of chloride content in tap water by spectrophotometry.
19. Evaluation of the composition of complex by spectrophotometry.
20. Determination of composition and stability constant of metal complexes (Fe^{3+} and salicylic acid, $\text{Fe}(\text{II})/\text{Ni}(\text{II})$ and 1,10-phenanthroline) by spectrophotometry.
21. Determination of Iron in mustard seed by spectrophotometry.
22. Determination of blood urea and uric acid by spectrophotometry.
23. Assay of urinary creatinine by spectrophotometry.
24. Evaluation of composition and stability constant of $\text{Fe}(\text{III})\text{-T}$ iron complex by Turner and Anderson method.
25. pH-metric determination of soda ash in washing soda.
26. Determination of water in hydrated calcium sulphate by Karl-Fischer titration.

27. Polarographic determination of Cd and zinc in solutions individually and in a mixture.
28. Polarographic evaluation of stability constant of lead oxalate complex.
29. Determination of urinary reducing sugar, chlorides, urea and uric acid by titrimetry.
30. Assay of aspirin/caffeine/phenacetin by UV-spectroscopy.
31. Determination of Vitamin A in Vanaspathi by UV spectroscopy.
32. Preparation of 6,10-Nylon [poly(hexamethylene) sebacamide] by interfacial polymerization and its characterization by m.p., inherent viscosity and IR studies.
33. Study of kinetics of polymerization.
34. Determination of molecular weight of polymer by viscosity and turbidimetry.
35. Analysis of phenol-formaldehyde reaction products by TLC.

References

1. A Text-Book of Quantitative Inorganic Analysis, 3rd edn., A. I. Vogel, Longman (1961).
2. Vogel's Textbook of Quantitative Inorganic Analysis, 4th edn., G. H. Jeffery, J. Bassett, J. Mendham and R. C. Denney, ELBS (1978).
3. Colorimetric Determination of Traces of Metals, 3rd edn., E. B. Sandell, John Wiley and Sons (1959).
4. Analytical Chemistry, 5th edn., G.D. Christian, John Wiley and Sons (2001).
5. Numerical Methods in Chemistry, K. J. Johnson, Marcel Dekker (1980).

