B. Sc. (Hons.) Part III

Section A : *Physical Chemistry Practicals* *Marks : 50*

1. Viscosity-composition curve for a binary liquid mixture.
2. Surface tension-composition curve for a binary liquid mixture.
3. Determination of indicator constant - colorimetry.
4. Determination of pH of a given solution using glass electrode.
5. Beer's Law - Determination of concentration of solution by colorimetry.
6. Order of reaction of I_2 / Acetone / H^+.
7. Equilibrium constant of methyl acetate hydrolysis reaction.
8. Dissociation constants of weak acid, base.
9. Conductometric titration : acid-base.
10. Potentiometric titration : acid-base.
11. Kinetics of catalytic decomposition of H_2O_2.
12. Kinetics of acid-catalysed hydrolysis of sugar (chemical method).
13. Determination of relative strengths of two acids by studying the kinetics of acid-catalysed ester hydrolysis.
14. Kinetics of enzymatic reaction (starch-amylase system).

Section B : *Inorganic Chemistry Practicals* *Marks : 50*

1. Determination of nickel as nickel (II) dimethyl glyoximate (involving solvent extraction) colorimetrically.
2. Determination of Pb as dithiozone complex colorimetrically.
3. Determination of Al or Mg as their oxinate colorimetrically.
4. Potentiometric titration involving EDTA.
5. Potentiometric titration of Fe^{2+} with Ce^{4+}.
6. Job's method of continuous variation for determination of stoichiometry of the complexes.
7. Gravimetric determination of the following using sintered glass crucible:
   (a) Ni as $Ni(DMG)_2$
   (b) Cu as Cu(SCN)
   (c) Al or Mg as oxinate
   (d) Zn as Zn NH_4PO_4
8. Chromatographic separation of the following :
   (a) Cl^-, Br^-, and I^- (b) Cd^{2+} and Hg^{2+} (c) Ag^{2+} and Pb^{2+}
9. Preparation of Aluminium acetylacetonate and its purification by vacuum sublimation.

Section C : *Organic Chemistry Practicals* *Marks : 50*

1. Systematic identification of organic compounds (monofunctional and simple bifunctional) and preparation of their derivatives.
2. Preparation of the following compounds:
   Suphanilic acid, dibenzyl acetone, methyl orange, dinitrobenzene from benzene, isolation of caffine.
3. Estimation of phenol (bromide-bromate method) and aniline (bromide-bromate and acetylation methods).
4. Equivalent weight of an acid (neutralization).
5. Identification of organic functional groups by I.R. spectroscopy.

***Note* :** Experiments may be added/deleted subject to availability of time and facilities.