

MJD Govt. College Taranagar (Churu)
Department of Chemistry
B.Sc.-II (Syllabus)
PRACTICAL EXAM

INORGANIC CHEMISTRY

1. Calibration & Preparation of solutions

Calibration of fractional weights, pipettes and burettes. Preparation of standard solutions.

Dilution 0.1 M to 0.001 M solutions. ‘

2. Analysis

For examination, alternatively, one exercise either from (I) or (II) be given

(I) Volumetric Analysis

- (i) Determination of acetic acid in commercial vinegar using NaOH.
- (ii) Determination of alkali content-antacid tablet using HCl.
- (iii) Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- (iv) Estimation, of hardness of water by EDTA. (v) Estimation of ferrous and ferric by dichromate method, (vi) Estimation of copper using thiosulphate.

(II) Gravimetric Analysis

- (i) Analysis of Cu as CuSCN.
- (ii) Analysis of Ba as BaSO₄

ORGANIC CHEMISTRY

1. Chromatography: Determination of R_f values and identification of organic compounds.

- (i) Preparation and separation of 2, 4-dinitrophenylhydrozone of acetone, 2-butanone, hexan-2- and 3-one using toluene and light petroleum (40 :60). (Thin layer chromatography)
- (ii) Separation of a mixture of dyes using cyclohexane and ethyl acetate(8.5 : 1.5). (Thin layer chromatography)
- (iii) Separation of a mixture of phenylalanine and glycine. Alanine and aspartic acid. Leucine and glutamic acid. Spray reagent-ninhydrin. (Paper chromatography : Ascending and Circular),
- (iv) Separation of a mixture of D, L-alanine, glycine and L-Leucine using n-butanol: acetic acid : water (4:1:5), spray reagentninhydrin. (Paper chromatography : Ascending and Circular).
- (v) Separation of monosachharides-a mixture of D-galactose and D-fructose using n-butanol: acetone: water (4:5:1) spray reagentaniline hydrogen phthalate. (Paper chromatography: Ascending and Circular).

2. Qualitative Analysis:

Analysis of given organic mixture containing two solid components
Using water, NaHCO_3 or NaOH for separation and preparation of suitable derivatives.

PHYSICAL CHEMISTRY

- 1 - Determination of the transition temperature of the given substance by thermometric/dilatometric method (e.g. $\text{MnCl}_2 \cdot 2\text{H}_2\text{O}$ / $\text{SrBr}_2 \cdot 2\text{H}_2\text{O}$.)
2. To study the effect of a solute (e.g. NaCl , succinic acid) on the critical solution temperature of two partially miscible liquids (e.g. phenol-water system) and to determine the concentration of that solute in the given phenol water system.
3. To construct the phase diagram of two component (e.g. diphenylamine-benzophenone) system by cooling curve method.
4. To determine the solubility of benzoic acid at different temperatures and to determine ΔH of the dissolution process.
- 5.. To determine the enthalpy of neutralisation of weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionisation of the weak acid/weak base.
6. To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Note : Similar exercise may be set in question paper as per availability

SCHEME OF EXAMINATION (B.Sc. Part-II) PRACTICAL

Max. Marks: 65 Min. Marks:- 24 Time: 5 hours

INORGANIC CHEMISTRY

1. Calibration and preparation of solution – 5 Marks
2. Analysis: One Exercise from 2(i) or 2(ii) 10 Marks

ORGANIC CHEMISTRY

- 1-Chromatography: One Exercise 5 Marks
- 2-One Organic mixture 10 Marks

PHYSICAL CHEMISTRY

- Any One experiment 15 marks
Spotting(instruments) 10 marks

VIVA 05 Marks

RECORD 05 Marks