

ANDHRA UNIVERSITY
DEPARTMENT OF CHEMISTRY
M.Sc. (PREVIOUS) CHEMISTRY
PAPER: INORGANIC CHEMISTRY LABORATORY-I
(Effective from the admitted batch of 2021-2022)

1. Synthesis of Inorganic Metal Complexes: Synthesis of 3d transition metal complexes of tetrahedral, square planar and octahedral geometries.

- (i) Preparation of Tetraammine Copper(II) sulphate monohydrate
- (ii) Potassium tris-oxalatoferrate (III) trihydrate
- (iii) Tris-thiourea copper(I) sulphate

2. Systematic SemimicroQualitative Analysis of Inorganicsix radical mixtures

In systematic Semi micro qualitative inorganic analysis, inorganic mixture contains three cations and three anions. The analysis involves identification and conformation of cations and anions containing one less familiar cation (Tungsten, Molybdenum, Zirconium, Thorium, Titanium, Uranium, Cerium, Vanadium, Lithium, Berkelium Etc... and one interfering anion

Anions: CO_3^{2-} , S^{2-} , SO_3^{2-} , Cl^- , Br^- , I^- , NO_3^- , SO_4^{2-} , CH_3COO^- , $\text{C}_2\text{O}_4^{2-}$, $\text{C}_4\text{H}_4\text{O}_6^{2-}$, PO_4^{3-} , CrO_4^{2-} , AsO_4^{3-} , F^- , BO_3^{3-}

Cations: Ammonium (NH_4^+), 1st group: Hg, Ag, Pb, Tl, W; 2nd group: Hg, Pb, Bi, Cu, Cd, As, Sb, Sn, Mo; 3rd group: Fe, Al, Cr, Ce, Th, Ti, Zr, V, U, Be

4th group: Zn, Mn, Co, Ni. 5th group: Ca, Ba, Sr. 6th group: Mg, K, Li

Note: A minimum of 4 inorganic mixtures must be analysed in this Semester

REFERENCE BOOKS:

1. Practical Inorganic Chemistry, G. Marr and B. W. Rockett.
2. Practical Inorganic Chemistry by G. Pass H. Sutchiffe, 2nd edn John Wiley & Sons.
3. Experimental Inorganic/Physical Chemistry, M. A. Malati, Horwood Publishing, Chichester, UK (1999)

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SEMESTER-I

PAPER: PHYSICAL CHEMISTRY LABORATORY-I
(EFFECTIVE FROM THE ADMITTED BATCH OF 2021-2022)

1. Conductometry
 - a) Conductometric titration of strong acid (HCl) vs strong base (NaOH)
 - b) Conductometric titration of weak acid (CH₃COOH) vs strong base NaOH)
 - c) Conductometric titration of mixture of acids (HCl + CH₃COOH) vs strong base (NaOH)
2. Determination of Cell constant of conductivity cell
3. Determination of Dissociation constant of weak acid by conductometric Method
4. Determination of Critical solution temperature of phenol-Water system
5. Determination of effect of electrolyte (NaCl) on the miscibility temperature of Phenol- Water system
6. Determination of composition of Cuprammonium cation using partition Coefficient method
7. To verify Langmuir and Freundlich isotherm for absorption of acetic acid onto activated Charcoal

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SEMESTER-I

PAPER: ORGANIC CHEMISTRY LABORATORY-I
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Synthesis of Organic compounds

Synthesis, purification and characterization of about ten organic compounds involving one or two stages.

List of some suggested compounds

1. β -Naphthyl methyl ether from β -Naphthol
2. m-dinitrobenzene from Nitrobenzene
3. Azo dye from primary amine
4. Aromatic acid from ester
5. Benzanilide from aniline
6. p-nitroaniline from Acetanilide
7. p-Bromo acetanilide from aniline
8. Phthalimide from phthalic acid
9. 1,2,3-Tribromo benzene from aniline
10. Benzanilide from Benzophenone

Text Books:

1. A Textbook of Practical Organic Chemistry by A. I. Vogel, ELBS and Longman group.
2. Practical Organic Chemistry by Mann and Saunders, ELBS and Longman group.