

Paper-XII (CHN505)

Laboratory Course

270 Hours (18 Hours/week)

INORGANIC CHEMISTRY

I Qualitative (A mixture containing total Eight radicals) (Minimum 4)

- (a) Less common metal ions – TI, Mo, W, Ti, Zr, Th, V, U (two metal ions in cationic/anionic form)
- (b) Insoluble – oxides, sulphates and halides

II Separation and determination of two metal ions Cu-Ni, Ni-Zn, Cu-Fe etc. involving volumetric and gravimetric methods (Minimum 2)

III Chromatography

Column chromatography – ion exchange

ORGANIC CHEMISTRY

Qualitative Analysis

Separation, purification and identification of compounds of three component mixture (solid mixed with liquid) use of TLC and column chromatography, chemical tests. IR spectra to be used for functional group identification etc. preferred.

Organic Preparation (Minimum 3)

- (i) Sandmeyer reaction: p-Chlorotoluene from p-toluidine
- (ii) Acetoacetic ester Condensation: Synthesis of ethyl-n-butylaceto -acetate by A.E.E. condensation.
- (iii) Cannizzaro reaction : 4-Chlorobenzaldehyde as substrate
- (iv) Friedel Crafts Reaction : β -Benzoyl propionic acid from succinic anhydride and benzene
- (v) Aromatic electrophilic substitutions: Synthesis of p-nitroaniline and p-bromoaniline

Quantitative Analysis (Minimum 3)

- (i) Determination of the percentage or number of hydroxyl groups in an organic compound by acetylation method
- (ii) Estimation of amines/phenols using bromate bromide solution/or acetylation method
- (iii) Determination of Iodine and Specification values of an oil sample.
- (iv) Determination of DO, COD of water sample