

Syllabus

M.Sc. (Chemistry) Programme

(SEMESTER – I)

Lab course– I

Programme Code- (MSCCH -21)

Course Code – (MSCCH -505L)

Chemistry Lab-I: Organic and Inorganic

Block I Inorganic Chemistry

Unit 1 Qualitative Analysis

Qualitative analysis of mixtures of salts containing not more than eight radicals including Rare-earth element salts (two rare element ions), Interfering radicals, Other anions, which have not been done in under graduate practical, Insolubles and simple salts.

Unit 2 Preparations

Preparation of selected inorganic compounds such as:

[Ni(dmg)₂], Prussian Blue, Turnbull's Blue,
[Cu(NH₃)₄]SO₄.H₂O, Co[NH₃]₆[Co(NO₂)₆],
cis-K[Cr(C₂O₄)₂(H₂O)₂], *cis*-[Co(trien)(NO₂)₂]Cl.H₂O,
Na[Cr(NH₃)₂(SCN)₄], Hg [Co(SCN)₄],
[Mn(acac)₃], [Co(py)₂Cl₂],
K₃[Fe(C₂O₄)₃], [Ni(NH₃)₆]Cl₂

Unit 3 Quantitative Estimations

Quantitative estimation of metal ions by complexometric titration, direct and / or back titration, use of masking agents.

Block II Organic Chemistry

Unit 4 Separation and Identification of components of Binary Mixtures

Separation and identification of coimponents of binary mixtures with water, aqueous solutions of sodium bicarbonate, sodium hydroxide, hydrochloric acid and ether separation.

Unit 5 Quantitative Estimations

1. Determination of the percentage of number of hydroxyl groups in an organic compound by acetylation method.
2. Estimation of amines/ phenols using bromate-bromide solution/ or acetylation method.
3. Determination of Iodine and Saponification values of an oil sample.
4. Determination of DO, COD and BOD of water sample
5. Spectrophotometric (UV/VIS) Estimations of :
(i) Amino acids (v) Ascorbic acid
(ii) Proteins (vi) Aspirin

(iii) Carbohydrates (vii) Caffeine

(iv) Cholesterol

Note: Inorganic exercise 30; Organic exercises 30; Record(including test) 15; attendance 10; viva 15