



CHEMISTRY

(Minor)

(6<sup>th</sup> Semester)

Course No.:CHM-DSM-351

**Practical**

*(Inorganic, Organic and Physical Chemistry)*

**Contact Hours: 60; Credits: 04**

**Full Marks = 100**[End Semester Exam (70) Internal Assessment (30)]

**Pass Marks = 40** [End Semester Exam (28) Internal Assessment(12)]

*Examination Time: 12 hours (2 days)*

**Section-A (Inorganic Chemistry)**

**1. Qualitative Inorganic Analysis**

**25 Marks**

Qualitative analysis of inorganic mixtures containing 2 anions and 2 cations without interfering radicals.

**Section-B (Organic Chemistry)**

**2a. Systematic Qualitative Organic Analysis of Organic Compounds possessing mono-functional groups (-COOH, phenolic, aldehydic, ketonic, amide, nitro, amines). 15marks**

**2b. Organic Preparation and purification:**

**10 marks**

***Organic preparation and reactions***

- i) Nitration of acetanilide/ nitrobenzene/ salicylic acid
- ii) Bromination of phenol/ aniline
- iii) Oxime/ 2,4-dinitrophenylhydrazone of aldehyde/ ketone.
- iv) Benzil from benzoin
- v) Benzilic acid from benzil
- vi) Benzoylation of Phenol/ aniline
- vii) Iodoform from acetone
- viii)

***Purification of organic compounds***

- i) Decolorization of crude sulphanilic acid (recrystallization using animal charcoal)
- ii) Recrystallization of benzoic acid from hot water/ ethanol.
- iii) Recrystallization of Acetanilide from boiling water
- iv) Purification of naphthalene/ camphor/phthalic acid (by sublimation)



**Section-C (Physical Chemistry)**

**3. Any one experiment out of the following can set in examination 20Marks**

- vi. To determine the surface tension of glycerol/acetic acid Solutions at different concentrations and construction of graph.
- vii. To determine the viscosity of glycerol/acetic acid Solutions at different concentrations and construction of graph.
- viii. pH-metric titration of strong acid vs strong base.
- ix. Conductometric titration of strong acid vs strong base.
- x. To determine the solubility of benzoic acid at different temperature and to determine  $\Delta H$  of the dissolution process.

**Internal Assessment**

- 7. Viva-voce 15 Marks**
- 8. Regularity in maintenance of Lab Note Book 5 marks**
- 9. Attendance 10 Marks**

**Reference Book**

- i. Vogel, A. I., A Textbook of Quantitative Inorganic Analysis, ELBS. 1978
- ii. Khosla, B. D.; Garg, V. C. & Gulati, A., Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011).
- iii. Nad, A.K., Mahapatra, B., Ghoshal, A., An Advanced Course in Practical Chemistry, New Central Book Agency (P) Ltd., Kolkata, India.
- iv. Ahluwalia, V. K. & Aggarwal, R. Comprehensive Practical Organic Chemistry, Universities Press.

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