



CHEMISTRY

(Major)

(2<sup>nd</sup> Semester)

Course No.:CHM-DSC-152

**Practical**

*(Inorganic, Organic and Physical Chemistry)*

**Contact Hours: 45; Credits: 03**

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

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

*Examination Time: 18 hours (3 days)*

**Section-A (Inorganic Chemistry)**

**1(a). Inorganic preparation and reactions** **10 marks**

- i) Preparation of Chrome alum
- ii) Tetraamminecopper(II) sulphate
- iii) Sodium Trioxalatochromate (III)
- iv) Preparation of Aluminium potassium sulphate, Potash alum
- v) Preparation of Manganese (III) phosphate

**1(b). Titrimetric Analysis** **10 Marks**

- i) Calibration of glass ware, pipette, burette and volumetric flask.
- ii) Preparation of solutions of different Molarity / Normality

**Section-B (Organic Chemistry)**

**2. Preparation of derivative** **20 Marks**

Prepare a derivative of the given organic compound containing monofunctional group, recrystallize the derivative and determine the melting point.

Functional group

- a) -COOH (ester/amide/anhydride)
- b) -CHO/ -CO- (phenyl hydrazone)
- c) -OH (benzoate)
- d) -NH<sub>2</sub> (benzamide)
- e) -NO<sub>2</sub> (reduction/



**Section-C (Physical Chemistry)**

3. Any two experiment out of the following can set in examination 15+15=30Marks
- To determine the surface tension of glycerol/acetic acid Solutions at different concentrations and construction of graph.
  - To determine the viscosity of glycerol/acetic acid Solutions at different concentrations and construction of graph.
  - Determination of transition temperature of the given substance by thermometric method (e.g.,  $\text{MgSO}_4/\text{MnCl}_2/\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ ).
  - To determine the solubility of Salt ( $\text{BaCl}_2$ ,  $\text{KCl}$ ,  $\text{KNO}_3$ ) in water at room temperature.
  - To determine the refractive index of a given liquid by Abbe refractometer and to find the specific and molar refraction.

**Internal Assessment**

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|---|----------|
| 4. Viva-voce                                  | 15 marks |
| 5. Regularity in maintenance of Lab Note Book | 5 marks  |
| 6. Attendance                                 | 10 marks |

Reference Books:

- Vogel, A. I., A Textbook of Quantitative Inorganic Analysis, ELBS.
- Nad, A.K., Mahapatra, B., Ghoshal, A., An Advanced Course in Practical Chemistry, New Central Book Agency (P) Ltd., Kolkata, India.
- Das, Subhas C, Advanced Practical Chemistry for 3-Year Honours Course.
- Vogel, A. I., A Textbook of Qualitative Organic Analysis, ELBS.
- Khosla, B. D.; Garg, V. C. & Gulati, A., Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011).
- Athawale, V. D. & Mathur, P. Experimental Physical Chemistry, New Age International: New Delhi (2001).
- Jadav, J. B., Advance Physical Practical Chemistry, Goel Publishing House, New Delhi (1981)
- Ahluwalia, V. K. & Aggarwal, R. Comprehensive Practical Organic Chemistry, Universities Press.