



CHEMISTRY

(Major)

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

Course No.:CHM-DSC-303

**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: 18 hours (3 days)*

**Section-A (Inorganic Chemistry)**

**1. Iodo-/Iodimetric Titration and Gravimetric (*any one*)** **20 marks**

- i) Determination of copper (II) using sodium thiosulphate solution iodimetrically
- ii) Determination of available chlorine in bleaching powder iodometrically.
- iii) Determination of nickel (II) as Ni(DMG)<sub>2</sub> complex gravimetrically.

**Section-B (Organic Chemistry)**

**2. Qualitative Organic analysis** **30 marks**

- i) Detection of elements (N, S and halogens) and functional groups, determination of melting points and preparation of suitable derivatives to identify the given organic compounds

**Section-C (Physical Chemistry)**

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

- i) pH metric titration of mixture of strong and weak acid vs strong base.
- ii) To determine the water of crystallization of FeSO<sub>4</sub>.2H<sub>2</sub>O by titration against standard KMnO<sub>4</sub>.
- iii) Conductometric titration of strong acid vs strong base.
- iv) Verification of Lambert-Beer's law and determine the concentration of CuSO<sub>4</sub>/KMnO<sub>4</sub>/K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> in a solution of unknown concentration.
- v) Study of the kinetics of interaction of crystal violet/phenolphthalein with sodium hydroxide.

**Internal Assessment**



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

**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.