

CHE 507

M.Sc. (IInd SEMESTER) EXAMINATION, 2023-24

(CBCS MODE)

CHEMISTRY

(Analytical Chemistry)

5066



Time : Three Hours]

[Maximum Marks: 75

Note: There are **three** sections (A, B and C) and Candidate has to attempt questions from all sections. Marks are indicated against each section.

Section-A

1. Answers all questions : 5×3=15
- (a) Why conductometric method is well suited for the study of precipitation titrations ?
 - (b) What are necessary conditions for Polarographically active species ?
 - (c) Mention salient features of different detectors used in HPLC technique.
 - (d) Give block diagram of Gas chromatographic instrument.
 - (e) Mention the applications of Flame photometer.

Section-B

Answer all questions of the following : 4×5=20

2. (a) What is the principle of cyclic voltammetry? Give its applications.

Or

- (b) Discuss various types of electrodes used in potentiometry.

3. (a) Draw and interpret the TG curve for hydrated magnesium oxalate.

Or

- (b) Describe neutron activation analysis.

4. (a) Discuss the factors which affect DTA and DSC curves.

Or

- (b) Describe the limitations of turbidimetry.

5. (a) Describe the construction and working of dropping mercury electrode.

Or

- (b) Describe the application of potentiometric titration for oxidation-reduction reaction.

Section-C

Answer any two questions of the following : $2 \times 20 = 40$

6. Describe the principle of conductometric method. Give schematic diagram of instrument used. Mention the application of this method in acid base titrations.
7. What is the basic difference between TGA and DTA ? Explain the factors affecting TGA curves. Draw and interpret the TG curve of hydrated calcium oxalate.
8. Discuss the principle of HPLC. Explain the factors affecting the chromatogram in this technique. What is significance of bonded those packing in HPLC ?
9. What is the basic principles of polarographic technique ? Give Ilkovic equation and mention its significance.

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