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# CHE 507 N / CHE 507

## M.Sc. (II[nd] SEMESTER) EXAMINATION, 2024-25

## (CBCS MODE)

## CHEMISTRY

## (Analytical Chemistry)



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. Answer **all** questions : 5×3=15

(a) What is the principle of conductometric titrations.

(b) How is TGA different from DSC.

(c) Differentiate between voltammetry and cyclic voltammetry.

(d) What kind of mixtures are separated by gas solid chromato-graphy.

(e) Describe the limitations of turbidimetry.

## Section-B

**Note:** Answer **all** questions of the following : $4 \times 5 = 20$

2. (a) What is the basic principle of potentiometry. Give its uses also.

**Or**

(b) Give a block diagram of the apparatus used in Gas-Liquid chromatography.

3. (a) Describe the principle and experimental setup of flame photometric method of analysis.

**Or**

(b) What are activation analysis methods ? Describe neutron activation analysis.

4. (a) What is basic difference between isotopic dilution and inverse isotopic dilution method. Give applications of dilution method.

**Or**

(b) What do you understand by bonded phase packings in HPLC method. Explain with suitable examples.

5. (a) What is complexometric titration. Give its uses.

**Or**

(b) Draw and interpret the TG curve for $C_aC_2O_4.H_2O$ (hydrated calcium oxalate)

## Section-C

**Note:** Answer any **two** questions of the following : 2×20=40

6. Discuss the principle of Gas chromatographic method. Explain with example the difference between GLC and GSC.

7. Discuss principle of HPLC. Explain the factors affecting the chromatogram in HPLC.

8. What is the half wave potential ? How is half wave potential related to standard reduction potential of oxidation-reduction system. Write down Ilkovic equation.

9. Describe conductometric technique for analysis with reference to all acid base titration and precipitation titration.

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