PB **5240**

Roll No. _____ Total No. of Pages: 02

M.Sc. (Semester - III) Examination - Dec. - 2025
CHEMISTRY
PAPER - 3.1 chem
Chromatography
(Common for all specialization)

Time Allowed: Three Hours **Maximum Marks: 70**
Minimum Marks : 28

This question paper contains two sections as under

401

Section - A (खण्ड - अ) **Max. Marks-20**

This section will have 10 questions, having 02 questions from each unit with no internal choice. Answer in about 20 words. All questions will have equal marks. (02×10=20)

Section - B (खण्ड - ब) **Max. Marks-50**

This section will have 10 questions, having 02 questions from each unit, one question to be attempted from each unit. Words limit approximately 400-500 words. Questions may have sub divisions. All questions will have equal marks. (10×05=50)

401

Section - A

1. i) What is chromatogram? How it will formed in Paper Chromatography? 2x10=20
   ii) What is Eluotropic series? How it is used in Chromatographic applications?
   iii) What are Visualizing agents? Give two examples.
   iv) What are methods generally used to prepare thin layer of absorbents?
   v) What do you understand by Column efficiency? How it can be increased?
   vi) What is Multi Dimensional Gas-Chromatography? When it is used?
   vii) Define size-exclusion chromatography.
   viii) Explain in brief principle of Bonded-phase chromatography.
   ix) Describe the supporting media ured in Electrophoresis techniques.
   x) What is Micellar Electrokinetic capillarg chromatography?

Section - B

Unit - I

2. Write short notes on : 5x2=10
   (a) Classification of Chromatography.
   (b) Types of Paper chromatography.

OR

Describe the principle of Paper Chromatography and importance of R_f value to detect the analytes. Explain some application of Paper Chromatogaphy.

Unit - II / इकाई - II

3. Explain in detail about the choice of sorbents and solvents used in thin layer chromatography along with some important applications. 10

OR

Write notes on - 5+5

(a) Instrumentation of High Performance Thin Layer chromatography.

(b) Advantages on high performance thin layer Chromatography over Thin layer Chromatography.

Unit - III

4. Describe the principle and instrumentation of Flash chromatography. Provide it's important applications. 10

OR

Write short notes on 7+3

(a) Detectors used in Gas Chromatography.

(b) Some Applications of Gas-Chromatography

Unit - IV

5. Describe the principle, instrumentation and types of high performance liquid Chromatography (HPLC) and some of it's major applications. 10

OR

Write short notes on 5+5

(a) Ion-exchange resins

(b) Applications of Ion-Exchange Chromatography

Unit - V

6. Describe the theory of classification of Electrophoresis and some factors affecting ionic mobility. 3+3+4

OR

Write short notes 5+5

(a) Instrumentation of capillary electrophoresis.

(b) Applications of capillary electrophoresis.