647510 **MSC3ACTC0110** **Seat No :_____**

M.Sc.(Chem.) Semester - 3 (*CBCS*) Examination
Oct/Nov-2022 (OLD COURSE)
ADVANCE CHROMATOGRAPHIC TECHNIQUES (CORE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer any **seven** of the following ten questions. [14]

1. Classify the chromatography according to stationary phase with examples.
2. Define the term Chromatography.
3. What is isocratic system in HPLC?
4. Why HPTLC is considered as superior technique than TLC?
5. Give the ideal characteristic of carrier gas in GC.
6. Give the principle of Ion Exchange chromatography.
7. Draw the schematic diagram of GCMS.
8. Explain the Relative Retention Time with suitable example.
9. Define the terms: Normal Phase chromatography and Reverse phase chromatography.
10. Discuss the limitations of Gel Permeation Chromatography (GPC).

Q.2 Answer any **Two** of the following **Three** questions. [14]

1. Explain partition and adsorption chromatography with figure.
2. Give detail application of chromatography.
3. Discuss the Instrumentation of HPLC.

Q.3 Answer the following questions. [14]

1. Write a note on Rate theory.
2. Write a detailed note on UV detector with figure.
3. Discuss Thermal Conductivity Detector with schematic diagram.

OR

Q.3 Answer the following questions. [14]

1. Give difference between HPLC and GC.
2. Give an account for columns used in gas chromatography.

Q.4 Answer any **Three** of the following **five** questions. [14]

A. Answer any **two** out of following **three** questions [10]

1. Give detailed account of Ion Chromatography technique.
2. Briefly explain various types of paper chromatography with its principle.
3. Briefly Explain Supercritical Fluid Chromatography (SFC).

B. Answer any **one** out of following **two** questions [04]

1. Differentiate TLC and HPTLC techniques.
2. Why chamber saturation is necessary in TLC? Explain in detail.

Q.5 Answer any **two** of the following **four** questions. [14]

1. Give detail difference between GCMS and LCMS
2. Discuss principle and theory of size exclusion chromatography.
3. Discuss instrumentation of HPTLC with schematic diagram.
4. Discuss any two ionization techniques used in GCMS.

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