

M.Sc.(Chem.) Semester - 3 (CBCS) Examination**Oct/Nov-2021 (OLD COURSE)****ADVANCE CHROMATOGRAPHIC TECHNIQUES (CORE)****Time: 2:30 Hours****Marks : 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate.
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Q1. Answer any seven out of ten questions**14**

1. Illustrate adsorption and absorbance with graphical representation.
2. What is reverse phase chromatography?
3. Explain R_f value with suitable illustration.
4. What is metastable ion peak?
5. Which GC detector is called universal detector? Why?
6. Define Peak Asymmetry (As) and give its equation.
7. Briefly explain the limitations of glass columns employed in GC.
8. Give the principle of Size Exclusion Chromatography.
9. Give examples of cation and anion exchangers for Ion Chromatography.
10. Name any two HPLC and GC detectors.

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

1. Write a note on Rate theory of chromatography.
2. Briefly elucidate eddy diffusion and longitudinal diffusion with diagram
3. Give the Principle of paper chromatography and discuss advantages and limitations of paper chromatography.

Q.3 Answer the following questions.**14**

1. Write a note on Flame Ionization Detector.
2. Explain Ion-exchange chromatography with suitable example.
3. Discuss preparation and activation of traditional TLC plate.

OR**Q.3 Answer the following questions.****14**

1. Draw schematic diagram of GC and explain role of column and column oven.
2. Give the principle and factors affecting Gel Permeation Chromatography.

Q.4**14****Answer any two out of three questions**

1. Write a note on with diagram Refractive index detector.
2. Draw schematic diagram of HPLC, enlist its major components and explain any two component in brief.
3. Give the principle and symbolic representation of Affinity chromatography.

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

1. Discuss various visualization techniques for chromatography.
2. Discuss any two ionization techniques used in GCMS.
3. Give an account of Supercritical Fluid Chromatography (SFC).
4. Write a note on circular paper chromatography.
