

**Second Semester M. Pharm Degree Supplementary Examinations
August 2021**

M.Pharm (Pharmaceutical Chemistry)

Paper I - Advanced Spectral Analysis (MPC 201T)

Time: 3 Hours

Total Marks: 75

- **Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers**
- **Indicate the question number correctly for the answer in the margin space**
- **Answer all parts of a single question together • Leave sufficient space between answers**
- **Draw table/diagrams/flow charts wherever necessary**

Essays

(3x10=30)

1. Explain the general fragmentation rules for organic compounds in mass spectrometry and describe the general fragmentation patterns for alkanes and ketones.
2. Describe principle, instrumentation, and application of flash chromatography.
3. Explain how inductive effect, Vander Walls de-shielding, anisotropic effects, and hydrogen bonding influence the chemical shift in NMR spectroscopy.

Short Notes

(9x5=45)

4. What is thermal method of analysis. Describe the principle of thermogravimetry.
5. Explain the instrumentation and applications of Raman spectroscopy.
6. INADEQUATE technique in NMR.
7. What is the nuclear overhauser effect. Explain its use in NMR spectroscopy.
8. Explain the principle and methodology employed in performing a radioimmune assay of digitalis.
9. Explain the requirement for a compound to undergo Mc Lafferty rearrangement. Explain using a suitable example.
10. Elaborate near infrared spectroscopy along with its applications.
11. Describe a differential thermal analysis curve along with the instrumentation involved in this technique.
12. Explain the role of interfaces in GC-MS. Add a note on applications of this technique.
