

QP CODE: 111350

Reg. No:.....

**First Semester M.Pharm Degree Regular/Supplementary Examinations  
November 2021**

**Paper I: Modern Pharmaceutical Analytical Techniques (MPT 101T)**

**(2019 Scheme)**

**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 principle, theory and instrumentation of mass spectroscopy. What are the different types of ionization techniques employed in mass spectroscopy. Explain any two.
2. Outline the principle and instrumentation of nuclear magnetic spectroscopy. Explain chemical shift and factors affecting chemical shift.
3. Give brief explanation about HPLC and write their applications.

**Short Notes**

**(9x5=45)**

4. Explain the principle involved in ultraviolet – visible spectroscopy. List the solvents employed and its characteristics. What is solvent effect.
5. FT –NMR and C13 NMR.
6. Explain the theory and modes of molecular vibrations involved in infra-red spectroscopy.
7. Describe the gas chromatography and write their applications.
8. Explain the immunological assays. Explain radio immuno assay and its applications.
9. Explain principle, instrumentation of TGA with their advantages and disadvantages.
10. Explain Braggs law and rotating crystal technique.
11. Explain ion exchange chromatography, give examples of cation and anion ion exchange resins employed. What are its applications.
12. List the factors affecting fluorescence. Define quenching of fluorescence and give examples of quenchers in fluorescence spectroscopy.

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