

**VINAYAKA MISSION'S RESEARCH FOUNDATION
(DEEMED TO BE UNIVERSITY), SALEM**

**M.PHARM. DEGREE EXAMINATION – JANUARY 2021
Second Semester**

BRANCH: PHARMACEUTICAL ANALYSIS

ADVANCED INSTRUMENTAL ANALYSIS

Time : Three hours

Maximum: 75 marks

**(Draw neat labeled diagrams wherever necessary
your answer should be specific to the questions asked)**

SECTION –A

I. Answer any **THREE** questions: **(3 x 15 = 45)**

1. What is HPLC? Explain about parameters affecting peak separation.
Explain resolution and band broadening.
2. What is NMR? Explain about chemical shift, factors influencing chemical shift. Elaborate COSY techniques.
3. What is mass spectroscopy? Explain about principle, theory, instrumentation and different types of ionization techniques used in mass spectroscopy.
4. Explain about the principle, instrumentation and detectors used in gas chromatography.

SECTION –B

II. Answer any **THREE** questions: **(3 x 10 = 30)**

5. Mass analyser.
6. 1-D & 2-D NMR.
7. Principles of capillary electrophoresis, method and modes of capillary electrophoresis.
8. Explain MS/MS systems.