

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

**M.PHARM. DEGREE EXAMINATION – December 2018
Second Semester**

**BRANCH: PHARMACEUTICAL ANALYSIS
ADVANCED INSTRUMENTAL ANALYSIS**

Time : Three hours

Maximum: 75 marks

SECTION –A

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

1. Explain in detail the principle, theory and instrumentation of HPLC with suitable diagrams
2. Describe the principles, theory and applications of various biochromatographic techniques
3. Describe the practical design of super critical fluid chromatography and its pharmaceutical applications
4. What are the different types of ionization in mass spectrometry? Explain the ion production techniques of mass spectroscopy with its applications

SECTION –B

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

5. Explain the theories of various detectors used in HPLC
6. Explain the various plate development techniques employed in HPTLC and mention the pharmaceutical application of HPTLC
7. Discuss the various scan modes of MS/MS
8. List out solvents and reference standards used in NMR spectroscopy and discuss its properties
