

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

**M.PHARM. DEGREE EXAMINATION – July 2019
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. Elaborate the role of immobilized polysaccharide CSP's in the advancement of enantiomeric separations of pharmaceutical agents.
2. Discuss the principle and instrumentation of gas chromatography with suitable block diagram.
3. Explain the general principle, theory and instrumentation of mass spectroscopy.
4. Discuss the interpretations of various organic compounds by ^{13}C NMR.

SECTION –B

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

5. Discuss the various validation parameters of chromatographic columns with suitable illustrations.
6. Discuss the visualizing agents used in HPTLC analysis and elaborate the pharmaceutical applications of HPTLC.
7. Discuss the basic configurations of capillary electrophoresis and its pharmaceutical applications.
8. Explain the types and functions of various mass analyzers.