

QP Code: 101350

Reg No:

**First Year M.Pharm Degree Supplementary Examinations– March 2015
(2011 Scheme)**

Modern Analytical and Research Methods

(Common for all branches)

Time: 3 hrs

Maximum Marks: 100

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays:

(2x20 =40)

1. Explain the principle and instrumentation of ion exchange chromatography. Mention about the elution techniques in HPLC.
2. Elaborate the theory and principle of NMR. Add a note on nuclear over Hauser effect and mention its applications.

Short Essays:

(6x10=60)

3. Explain the components of mass spectrophotometer with the help of a neat diagram.
4. Discuss the principle and instrumentation of spectrofluorimeter with the help of a neat diagram. Mention its applications.
5. Explain the following with its significance: • Theoretical plates • Symmetry factor • Resolution • HETP • Stationary phase and mobile phase
6. Explain X-ray diffraction technique and Chemical Shift
7. Explain the construction and working of photo multiplier tube and barrier layer cell.
8. Compare and contrast GC, HPLC and HPTLC.
