

QP Code: 101350

Reg No:

First Year M.Pharm Degree Examinations- February 2013

(2011 Admn- New 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 electromagnetic spectrum and its application in absorption spectroscopy. Add a note on Beer-Lambert law and derive with explanation the equation for molar absorptivity. (10+10=20)
2. Describe the working principle of nuclear magnetic resonance (NMR) spectrometry. Explain briefly - What are a chemical shift and the factors that cause chemical shifts. What makes the difference between a NMR solvents and a common solvent.

Short Essays:

(6x10=60)

3. Explain working principle of IR spectrophotometer. Add a note on the usefulness of IR spectroscopy in the structural elucidation of organic compounds.
4. Classify chromatographic techniques and explain thin layer chromatography (TLC). Mention the principle of chromatographic separation identification of amino acids.
5. Describe using a schematic diagram – the work ing principle of mass spectrophotometer (MS). Add a note on the hyphenation of MS with other analytical instruments
6. What is a fluorophore. Explain quenching mechanism in fluorescence spectroscopy. Add a note on application of fluorimetry in pharmaceutical analysis.
7. Describe the working principle of high performance liquid chromatography (HPLC). Add a note on detectors used in HPLC analysis.
8. Describe X-ray crystallography and explain the use of Miller indices in crystallographic evaluation.
