

QP Code: 101350

Reg No:

First Year M.Pharm Degree Supplementary Examinations June 2018

**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. State and explain the laws of molecular absorption of ultra violet (UV) and visible radiations. Mention its limitations and reasons for deviations. Explain the electronic transitions taking place in UV-visible spectroscopy. (10+5+5)
2. Explain the theory and instrumentation of gas chromatography (GC) with the help of a neat diagram. Add a note on the derivatisation techniques in GC. (15+5)

Short Essays: (6x10=60)

3. Explain the fragmentation rules in mass spectrometry (MS) and mention the fragmentation pattern of any two compounds
4. Compare dispersive IR with FTIR. Explain the working principle of different detectors used in IR spectra.
5. Explain the following:
 - ^{13}C NMR
 - Deuterium exchange reactions
6. Define Stokes shift. Describe the various factors affecting the fluorescent intensity of the molecules.
7. Explain the theory and instrumentation of atomic absorption spectrophotometer.
8. Explain Miller indices, Bragg's law and X-ray diffraction.
