

QP Code: 101350

Reg No: .....

**First Year M.Pharm Degree Examinations– September 2014  
( 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. What are the principles of spin-spin decoupling and describe any three methods. Discuss the factors affecting chemical shift with suitable examples.
2. Explain the principle and instrumentation of gas chromatography. Derive the Beer-Lamberts law and explain its deviations.

Short Essays:

(6x10=60)

3. Explain the principle, instrumentation and sample handling techniques in infrared spectroscopy.
4. Discuss the principle and Instrumentation of atomic absorption spectroscopy.
5. Explain the principle involved in assay of riboflavin, thiamine and quinine by fluorimetry. Mention the transitions involved in fluorescence.
6. Explain briefly about resolution in mass spectrophotometer and MC-Lafferty rearrangement.
7. Compare TLC & HPTLC on the basis of its principle and mention its pharmaceutical applications.
8. Explain briefly about Miller's indices. How will you calculate mean, median, mode and students T-test.

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