

**QP Code: 3330**

**Reg No: .....**

**M Pharm Part I Degree Examinations.... June 2012**

**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 instrumentation and functioning of a double beam IR spectrophotometer with a neat diagram . Write a note on sample handling in IR spectroscopy including attenuated total reflectance technique.
2. Explain the principle involved in mass spectroscopy. List the various methods of ionization of sample in mass spectra. Describe in detail the principle involved in chemical ionization and fast atom bombardment methods.

**Short Essays:**

**(6x10=60)**

3. Explain the theoretical principle of fluorescence spectroscopy. Write a note on quenching.
4. Describe the following in detail.
  - Chemical shift
  - Spin-spin coupling
5. Describe the principle, instrumentation and interferences in AAS.
6. Write a brief review of electromagnetic spectrum. Give the significance of solvent effect in UV-Vis spectroscopy.
7. Describe the construction and working principle of any three detectors used in GC.
8. Define accuracy and precision. Write a note on normal distribution and standard deviation.

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