

## MPY-101

M. Pharm. (First Semester)

EXAMINATION, June, 2006

MODERN ANALYTICAL TECHNIQUES

(MPY – 101)

Time : Three Hours **RGPVonline.com**

Maximum Marks : 75

Minimum Pass Marks : 38

**Note :** Attempt any five questions. All questions carry equal marks.

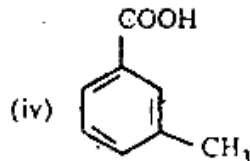
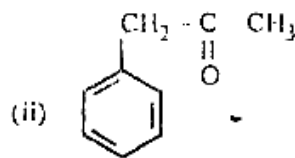
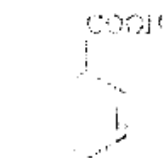
1. (a) Five solutions of a medicinal compound (Mol. wt. 451) having absorption maximum at 257 nm with concentrations specified below gave absorbances in 1.0 cm cell at 257 nm as follows : 8

Conc. (mg/ml)	A <sub>257</sub>
0.10	0.105
0.20	0.207
0.30	0.318
0.40	0.420
0.50	0.529

State if Beer's law is obeyed. Calculate specific absorption and molar absorptivity of the compound.

- (b) Draw a line diagram and explain the working of

- (a) Describe with a suitable diagram the working of an infrared spectrophotometer. 7
- (b) Discuss the significant of IR peaks in case of the following compounds : 8

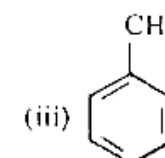
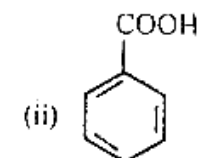
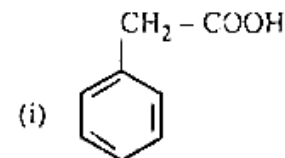


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3. (a) What are radioimmunoassays ? Discuss its important application. How are they superior to immunoassays ? 8
- (b) Discuss the theory and application of liquid scintillation spectrometry. 7
4. (a) State the principle involved in NMR spectroscopy. What do you understand by Lanthanide shift ? Discuss its significance in NMR spectroscopy. 9
- (b) How can you differentiate the following compounds by NMR spectroscopy ? 6
- Benzene and phenol
  - Ethanol and isopropanol

- (a) State the principle of HPLC. Compare and contrast HPLC and HPTLC. 8
- (b) Discuss the applications of HPLC-Mass in analysis. 7

6. (a) What is mass spectroscopy ? Discuss various fragmentation rules. State various applications of mass spectroscopy for structural elucidation. 9
- (b) Give the expected  $m/z$  values of the following compounds : 6



7. Discuss the principle, instrumentation and applications of optical rotatory dispersion and circular dichroism. 15
8. Write notes on any *two* of the following : 15
- Ion pair chromatography
  - Cytometry
  - FT-IR
  - Atomic spectroscopy

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