

MPY-101

M. Pharm. (First Semester)

EXAMINATION, Jan., 2007

MODERN ANALYTICAL TECHNIQUES

(MPY-101)

Time : Three Hours

Maximum Marks : 75

Minimum Pass Marks : 38

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

1. Give the principle of mass spectroscopy. Describe the general fragmentation rules which help in the interpretation of mass spectrum.

2. Explain the terms 'chemical shift' and spin-spin coupling. Discuss the expected PMR spectra of the following :

(a) Ethyl benzoate

(b) Ethanol

(c) 1, 1, 2-trichloropropane

3. Differentiate between DTA and DSC. Give their pharmaceutical applications. Which factors affect the DSC results?

Explain different types of stretching and bending vibrations in carbon dioxide molecule. Describe the construction and working of FTIR spectrophotometer and give its merits and demerits over conventional spectrophotometer.

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7. (i) Discuss the following terms in relation to HPLC :

(a) Retention time

(b) Resolution

(c) Column efficiency

(d) Reverse phase column

6 (e) HETP

(ii) Draw a neat labelled diagram of a binary HMC system and explain its working.

8. Discuss the theory, methodology and pharmaceutical application of Radioimmunoassays.

9. (a) Explain the origin of fluorescence. Give the factors which affect fluorescent efficiency.

(b) Give the theory and application of X-ray crystallography.

10. Write short notes on any two of the following :

(a) Ion pair chromatography

(b) Liquid scintillation spectrometry

(c) HPTLC