

M. Pharmacy I Semester

Examination, July 2015

Modern Analytical Technique*Time : Three Hours**Maximum Marks : 70*

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each questions are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Discuss principle and applications of Atomic Absorption Spectroscopy.
 b) Write a brief note on X-ray crystallography.
 c) Discuss how PMR differs from CMR.
 d) Exemplify chromophores and auxochromes. Give reasons for deviations from Beer's law. Discuss various types of bands in UV and Visible Spectroscopy.

OR

Discuss factors influencing vibrational frequencies and different types of coupled vibrations in IR Spectrophotometry. Show how UV Spectroscopy differs from IR Spectroscopy.

2. a) Give a brief note on Autoradiography.
 b) Discuss principle of fluorescence and factors affecting it.
 c) Write on differences between ESR and NMR.

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- d) Explain spin-spin coupling, factors affecting it and its role in structure elucidation.

OR

Discuss McLafferty rules, Hydrogen deficiency index and metastable ions and their importance in Mass Spectroscopy.

3. a) Write analytical applications of Gel and ion-exchange chromatography.
 b) Mention types of ion-exchange resins used in Ion exchange chromatography.
 c) Write on various types of Gels in Gel permeation chromatography.
 d) Write on GSC Vs GLC and their applications.

OR

Discuss on pumps, sample injectors, columns and detectors used in HPLC.

4. a) Explain principle of Liquid scintillation spectrometry.
 b) Discuss ultracentrifugation and its importance.
 c) Discuss DEPT and NOESY.
 d) Classify electrophoresis techniques. Discuss its theory and applications.

OR

Explain Immunoassay techniques and their applications.

5. a) Explain circular Dichroism.
 b) Give principle or DRD and its applications.
 c) Write principles and applications of scanning and transmission electron microscopy.
 d) Classify methods of thermal analysis and define them. Discuss instrumentation for DTA and DSC. Write applications.

OR

What is flow cytometry? Name parameters assayed by flow cytometry. Give its applications.
