

Roll No.

Total No. of Pages : 02

Total No. of Questions : 06

M.Pharmacy (Pharmaceutical Analysis) (Sem.-2)

ADVANCED INSTRUMENTAL ANALYSIS

Subject Code : MPA-201T

M.Code : 74925

Date of Examination : 04-07-22

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

1. a) Define spin-spin coupling. What is its significance? 5
b) Explain the different types of relaxation phenomenon in NMR spectroscopy. 5
c) Give the structure consistent with the following sets of NMR data of compound of molecular formula $C_{10}H_{14}$. 5
 - i) doublet at δ 0.88, 6H
 - ii) multiplet at δ 1.86, 1H
 - iii) doublet at δ 2.45, 2H
 - iv) singlet at δ 7.12, 5H
2. What is the underlying principle of mass spectrometry? Discuss the various rules governing the fragmentation of organic molecules with examples. 15
3. a) Discuss the principle, instrumentation and applications of SCFC. 8
b) Explain the various factors that affect resolution in electrophoresis. 7
4. a) Give specific applications of ion-exchange, size exclusion, ion-pair and affinity chromatography. 8
b) Write a detailed account on the various stationary phases and columns used in GC. 7

5. a) Give a detailed description of immobilized polysaccharide CSPs. 8
b) Explain in the detail the practical aspects of preparative HPLC. 7
6. a) Define the terms Index of H-deficiency, Nitrogen rule and HRMS. 6
b) Predict and outline the mass spectrum of aspirin. 5
c) What is the significance of deuterium exchange experiments in NMR spectroscopy?
Give examples. 4

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.