PAPER ID-411558

Subject Code: MPC201T

Roll No: | | | | | | | | | | | | | |

MPHARM

(SEM II) THEORY EXAMINATION 2023-24

ADVANCED SPECTRAL ANALYSIS

TIME: 3 HRS **M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define Nitrogen rule and its significance in mass spectroscopy.
b.	Write the principle of the LC-MS technique.
c.	Define the concept of NOESY technique and its advantage.
d.	Explain about isotope peaks and its significance.
e.	Discuss the role of HETCOR spectroscopy.
f.	Write about molecular ion peak and its significance.
g.	Write in brief about flash chromatography.
h.	What is principle of DTA?
i.	How will you characterize aniline and benzyl alcohol through IR spectroscopy?
j.	Write in brief about Raman spectroscopy.

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	After drawing the structures of following compounds, Generate Proton NMR spectra and assign the different protons and predict their splitting pattern/number of signals (a)1-Nitropropane (b) 2-Chloropropane (c) Benzylamine
b.	Define Wood ward-Feiser Rule and How do you calculate the absorption maximum wavelength for Acyclic conjugated dienes and heteroannular conjugated dienes with examples using Wood ward-Feiser Rule?
c.	Discuss the fragmentation rule of mass spectroscopy. Explain McLafferty rearrangement with two examples.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Write the principle, instrumentation part of High liquid chromatography (HPLC).
b.	Discuss the mass fragmentation of 2-methyl pentane and alkyl benzene and draw the mass spectra of these compounds with probable base peak.
c.	Discuss AT-IR spectroscopy in detail and write its significance.
d.	Describe the principle, instrumentation and major applications of DSC.
e.	Discuss principle of COSY experiment of 2D NMR and explain it one example in detail.
f.	Write the principle and methodology of ELISA.
g.	Write principle, instrument and pharmaceutical applications of ion change chromatography