Ref. No.: Ex/MPH101T/2024; Ex/MIP101T/2024; Ex/MPG101T/2024; Ex/MPL104T/2024; Ex/MPC101T/2024; Ex/MPB101T/2024

M. PHARMACY FIRST YEAR FIRST SEMESTER EXAM 2024

SUBJECT: MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES,

Full Marks 75

Answer any five by taking at least one from each Group

Group A

1. How electronegativity and anisotropic effect affect chemical shift for ^{1}H NMR. Discuss with suitable example. [15]

2. Write short notes on (**any two**) [7.5x2=15]
a) Electron impact ionization (EI)
b) Double Focusing Mass Analyzer
c) MALDI
d) Thermospray Mass Spectrometry

3. a) Explain different parts of NMR ***Or*** Mass Instrument with proper diagram. [9]
b) Shielding and Deshielding [6]

or

Short notes on coupling constant

Group B

4. Discuss the principle and instrumentation associated with UV-Visible spectroscopy. Discuss the solvent effects on UV-Visible spectroscopy. [12+3]

5. Write sample handling in case of IR spectroscopy. Discuss strategies to analyze IR spectrum to identify different functional groups. How do you confirm aromatic ring with different substitutional pattern from IR spectroscopy? [4+8+3]

6. Discuss the theory of fluorescence and phosphorescence. Write in detail about the various factors affecting fluorescence. Write a short note on quenching. [4+8+3]

Group C

7. Discuss in detail the principle, steps, procedure and applications of RIA. Discuss the application of bioluminescence. [10 + 5]

8. Discuss the principle and instrumentation of XRD. Discuss various quantitative chemical analysis by instrumental methods. [10 + 5]

9. Discuss the principle of potentiometric titration. Write an account on Grans Plot. Write in detail about the measurement of conductivity. [6 + 4 + 5]