Subject Code: MPL101T

Roll No

# MPHARM
## (SEM I) THEORY EXAMINATION 2021-22
## MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

*Time: 3 Hours* *Total 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 derivative spectroscopy.

b. Discuss the term overtone peaks.

c. Explain Chemical shift with suitable example.

d. Define nuclear magnetic double resonance.

e. Describe the term FAB.

f. Explain meta stable ions with suitable example.

g. Differentiate isocratic and gradient elution

h. What is zone electrophoresis?

i. Define Bragg's law.

j. Explain the advantage and disadvantages of DTA.

### SECTION B

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

a. Illustrate the principle, instrumentation and applications of UV-visible spectroscopy. Explain solvent effect of UV spectroscopy.

b. Explain theory and instrumentation of atomic absorption spectroscopy and also describe its various interferences and applications.

c. Write about ionization techniques used in mass spectroscopy. Discuss molecule ion and fragment ion with suitable examples. https://www.aktuonline.com

### SECTION C

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

a. Demonstrate the instrumentation and principle of FTIR. Explain factors affecting vibrational frequencies

b. Elaborate the principle, instrumentation and application of NMR. Discuss the factor affecting chemical shift.

c. Describe principle, instrumentation and applications of Mass Spectroscopy.

d. Discuss the theory, instrumentation and application of High performance liquid chromatography.

e. Define electrophoresis, what is the instrumentation and application of paper electrophoresis?

f. Explain principle, instrumentation and applications of differential scanning calorimetry.

g. Write a note on radioimmunoassay and ELISA.