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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.	Differentiate between Flame Emission Spectroscopy and Atomic Absorption Spectroscopy.
b.	Define chromophores and auxochromes.
c.	Write about the principle of electrophoresis.
d.	Recall the applications of NMR spectroscopy.
e.	List the types of gel chromatography.
f.	What are metastable ions?
g.	State Bragg's law.
h.	Explain the basics of potentiometry.
i.	State the pharmaceutical applications of the DSC technique.
j.	Define the term fluorescence.

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

a.	Describe the theory, modes of molecular vibrations, and sample handling methods of IR spectroscopy
b.	Appraise the theory and laws of UV-Visible Spectroscopy.
c.	Explain the process of spin-spin coupling and chemical shift taking place in NMR spectroscopy.

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

a.	Demonstrate the rules of mass fragmentation with examples.
b.	Explain the methodology and applications of paper electrophoresis.
c.	Describe the instrumentation, advantages, and disadvantages of Differential Thermal Analysis (DTA).
d.	Write short notes on RIA (Radio immune assay) and ELISA techniques.
e.	Explain the quenching effect with its types taking place in spectrofluorimetry.
f.	Define the principle and applications of the X-ray Crystallography technique.
g.	Discuss the theory, instrumentation, and applications of affinity chromatography.