BPHARMA
(SEM VIII) THEORY EXAMINATION 2021-22
ADVANCED INSTRUMENTATION 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.	Infer the applications of X-Ray diffraction method.
b.	Define the procedure for ealibration of UV-Visible spectrophotometer.
c.	What is a coupling constant?
d.	Define spin-spin coupling.
e.	Explain the principle of RIA.
f.	List the stationary and mobile phases used in GC-MS technique
g.	Define the role of a fluorimeter in the structural analysis of pharmaceutical compounds.
h.	Discuss the role of the NMR technique in the structural elucidation of compounds.
i.	Explain the term FAB.
j.	Define the term "time of flight" used in mass spectroscopy.

SECTION B

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

a.	Discuss the principle, instrumentation, and applications of the LC-MS technique.
b.	Elaborate on the fragmentation rules and different fragmentation peaks of mass spectroscopy.
c.	Discuss the following terms i) Differential Thermal Analysis ii) X-Ray Crystallography.

SECTION C

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

a.	Discuss the factors affecting the chemical shift in mass spectroscopy.
b.	Summarize the applications of ^{1}HNMR and ^{13}CNMR methods.
c.	Discuss the limitation and applications of Radioimmunoassay.
d.	Explain the principle and procedure of the X-Ray Crystallography technique.
e.	Discuss the principle and procedures involved in the solid-liquid extraction technique.
f.	Explain the principle and applications of Differential Scanning Calorimetry (DSC).
g.	Discuss the detectors used in Nuclear Magnetic Resonance spectroscopy.

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