

Paper Id:

Roll No.

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B PHARM
(SEM VIII) THEORY EXAMINATION 2022-23
ADVANCED INSTRUMENTATION TECHNIQUES

Time: 3 Hours

Total Marks: 75

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

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SECTION A

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

- Differentiate $^1\text{H-NMR}$ and $^{13}\text{C-NMR}$.
- What is chemical ionization technique?
- What is Thermogram?
- What do you mean by Miller Indices? <https://pharmacyindia.co.in/>
- Define Accuracy and Precision as per ICH guidelines.
- How will you calibrate electronic balance?
- What is n/p ratio? Mention its significance in radioactivity.
- Enlist the radioisotopes used in Radioimmunoassay.
- What do you understand by Scanning densitometry in HPTLC?
- What is MS-MS technique?

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SECTION B

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

- Discuss the instrumentation of NMR. Explain relaxation processes.
- Describe the principle, instrumentation and applications of DSC.
- Explain liquid-liquid extraction principle. Discuss the applications of LC-MS/MS.

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SECTION C

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

- Discuss spin-spin coupling with example. Write the significance of 'J' value.
- Describe the fragmentation pathway in mass spectrometry.
- Write the principle and application of Thermogravimetric Analysis.
- Explain X-Ray crystallography principle and its role in structure elucidation.
- Discuss the calibration of HPLC with its parameters as per ICH guidelines.
- Discuss the procedure of Radioimmunoassay with its applications. <https://pharmacyindia.co.in/>
- Explain time of flight mass spectrometer. What is Quasi-equilibrium theory.

