

Total No. of Questions - 13] [Total No. of Printed Pages - 2]

DEC-23-0104

BP-811 ET (Advanced Instrumentation Techniques)

B.Pharm-8th (PCI)

Time : 3 Hours

Max. Marks : 75

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note: Section A is compulsory. Attempt all questions in this section. Attempt any Two questions from Section B and Seven question from Section C.

SECTION-A

(10×2=20)

Short Answer (Compulsory)

- 1 (a) What is magnetic shielding?
- (b) What is an isotope peak in mass spectrum? Give its significance.
- (c) Give the applications of TGA.
- (d) What is diffraction? How is it used in X-ray methods?
- (e) Distinguish between calibration and validation.
- (f) What is the principle of RIA?
- (g) Calculate the index of hydrogen deficiency for p-chlorotoluene.
- (h) How does MS differ from MS/MS?
- (i) What is chemical and magnetic equivalence?
- (j) Define partition coefficient.

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SECTION B

BP-811 ET
(2×10=20)

Long Answer (Any Two)

- 2 Write a detailed account on various ionization methods in mass spectrometry.
- 3 Give principles of DSC and DTA. Describe their instrumentation, applications and limitations.
- 4 What is the principle of X-ray spectroscopy? Write a detailed description of various X-ray crystallographic methods.

SECTION C

(7×5=35)

Short Note Answer (Any Seven)

- 5 Give the working principle of TOF analyser. What are its advantages over other analysers?
- 6 Differentiate between salicylic acid and p-hydroxybenzoic acid on the basis of NMR spectra.
- 7 Predict the mass spectrum of phenyl propionate.
- 8 Describe various instrumental and sample characteristics affecting accuracy of TGA.
- 9 Write an account on ICH guidelines for method validation.
- 10 Write a descriptive note on solid phase extraction techniques.
- 11 What is the principle of GC-MS/MS? Give a descriptive diagram of a GC-MS/MS instrument.
- 12 Write a note on different types of crystals.
- 13 Give a step-by-step procedure for calibration of Fluorimeter.