

CBCS SCHEME

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18BT55

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Bioanalytical Techniques

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain about different Bioanalytical methods for extraction of drugs from Biological mixtures. (10 Marks)
b. Describe the working and principle of Ion – Exchange Chromatography. How is it different from Gel – Exclusion Chromatography? (10 Marks)

OR

- 2 a. Define Electrophoresis. Explain the principle and protocol of Iso – Electric focusing. (10 Marks)
b. Explain Affinity Chromatography and Elaborate on its types. (10 Marks)

Module-2

- 3 a. With a neat labeled diagram, explain Thin – layer Chromatography. (10 Marks)
b. Briefly explain the type of Detectors used in HPLC. (10 Marks)

OR

- 4 a. What is Gas Chromatography? Explain the instrumentation of Gas – Liquid Chromatography. (10 Marks)
b. Write about principle and applications of i) Cell fractionation ii) Flow Cytometry. (10 Marks)

Module-3

- 5 a. Write principle, construction and applications of Fluorescence Spectroscopy. (10 Marks)
b. Explain the method of determination of macromolecular structure by NMR. (10 Marks)

OR

- 6 a. Explain in brief the theory and principle of UV – Visible Spectroscopy. (10 Marks)
b. How can be a mass Spectroscopy be used for determination of analysis? (10 Marks)

Module-4

- 7 a. Derive the Beer's law and discuss the reasons for derivation of Beer's law. (10 Marks)
b. What are the basic instrumentation of X – ray Spectrometer? (10 Marks)

OR

- 8 a. What are the different types of Mass Spectrometers and explain the applications. (10 Marks)
b. Define Absorption, Fluorescence and Diffraction in X – ray Spectrometers. (10 Marks)

Module-5

- 9 a. Explain Scanning Electron Microscope in detail, with neat diagrams. (10 Marks)
b. What is Confocal microscopy? Explain its basic principle and different components of a Confocal microscope also state its applications. (10 Marks)

OR

- 10 a. Discuss on the concept of nanomechanical characterization of molecules with an example. (10 Marks)
b. With a neat labeled diagram, explain FTIR. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.