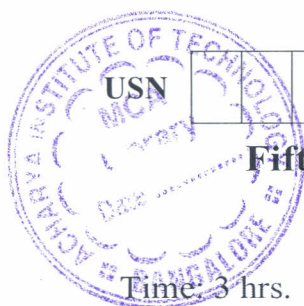


CBCS SCHEME



18BT55

Fifth Semester B.E. Degree Examination, Dec.2024/Jan.2025 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. What do you mean by Electrophoresis? Describe in detail the basic principle and procedure of SDS - PAGE. (10 Marks)
- b. What are the characteristics of Bioseparation? Outline the major unit operations involved in downstream processes. (10 Marks)

OR

- 2 a. What is Iso - Electric focusing? What is the principle of separation using Iso - Electric focusing. (10 Marks)
- b. State your point of view on column chromatography. Add a note on Reverse phase chromatography. (10 Marks)

Module-2

- 3 a. Discuss the principle, instrument and applications of Gas Liquid Chromatography (GLC). (10 Marks)
- b. Explain about the rate theory and plate theory in the chromatographic process. (10 Marks)

OR

- 4 a. With a neat sketch, explain the principle and development of Thin - layer chromatography. (10 Marks)
- b. Explain in detail the technique involved in the HPLC. (10 Marks)

Module-3

- 5 a. Write short note on the following :
i) Beer Lambert's Law ii) Chemical shift. (10 Marks)
- b. Give an account of IR and Raman spectroscopy in detail. (10 Marks)

OR

- 6 a. List out the applications of Mass Spectrophotometry. (10 Marks)
- b. Describe the working and application of NMR spectroscopy. (10 Marks)

Module-4

- 7 a. Explain the protocol of X - ray diffraction. (10 Marks)
- b. What are Ion - detectors? Explain in detail any one type of Ion detectors and its applications. (10 Marks)

OR

- 8 a. Explain about X - ray crystallography technique with its applications. (10 Marks)
- b. What do you understand by MALDI - TOF? Write its application in Biological Science. (10 Marks)

Module-5

- 9 a. Differentiate between SEM & TEM. (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 about the working principle and instrumentation of DTA (Differential Thermal Analyzer). (10 Marks)
b. Explain the process and principle of TGA (Thermo Gravimetric Analysis) with neat diagram. (10 Marks)
