

**M.Sc. (Micro) Semester - 2 (CBCS) Examination**  
**March/April – 2025 (As Per Syllabus Year-2018)**  
**Analytical Techniques (INTDESC)**

**Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que-1 Answer the following (any seven out of ten, each of two marks) (14)**
- 1) What is Beer-Lambert Law?
  - 2) What is autoradiography? Mention the uses.
  - 3) What is tissue fixation?
  - 4) Define gel electrophoresis.
  - 5) Draw the light path of fluorescent microscope.
  - 6) Write differences between SEM and TEM
  - 7) Mention the application of GC-MS.
  - 8) Write importance and application of 2D PAGE.
  - 9) Explain the applications of CD spectroscopy.
  - 10) Write about Mass spectroscopy.
- Que-2 Answer the following (any two) (14)**
- 1) Discuss different types of staining techniques
  - 2) Write a note on Electron microscopy and its type.
  - 3) Describe application of Autoradiography
- Que-3 Answer the following (both are compulsory) (14)**
- 1) Explain LC-MS/MS.
  - 2) Write about ion exchange chromatography.
- OR
- Que-3 Answer the following. (14)**
- 1) Write basic principle and types of chromatography. (05)
  - 2) What is HPLC? Explain its principle and application. (05)
  - 3) Write a note on affinity chromatography and its uses in molecule separation. (04)
- Que-4 (A) Answer the following (any two) (10)**
- 1) Explain Infrared spectroscopy with application.
  - 2) What is Spectroscopy? Describe Mass Spectroscopy.
  - 3) Explain principle and application of X-Ray diffraction for elucidation of 3D structure.
- (B) Answer any one of following. (04)**
- 1) Write any four principles of spectroscopy.
  - 2) Write uses of molecular modelling.
- Que-5 Answer the following (any two) (14)**
- 1) Write a note on types of centrifuge.
  - 2) Describe Northern Blotting techniques.
  - 3) Write a note on applications of centrifugation techniques
  - 4) Write a note on basic Principles of Electrophoresis.

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