



**MCC-003-1192004** Seat No. \_\_\_\_\_

**M. Sc. (Microbiology) (Sem. II) (CBCS) Examination**

**April / May - 2018**

**Micro - 210 : Analytical Techniques**

**Faculty Code : 003**

**Subject Code : 1192004**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

**1** Answer Any **Seven** of the following (2 Marks each)

- (a) Write the name of anion and cation exchangers.
- (b) Write the characteristics of the ideal detector in GC-MS.
- (c) What is Ionization? Enlist various ionization methods.
- (d) What is the full form of NMR and ESR?
- (e) What is the application of native gel electrophoresis?
- (f) What is the role of support matrix in gel electrophoresis?
- (g) What is relative centrifugal force?
- (h) What is fluorescence microscopy?
- (i) Define the word "molecular modeling".
- (j) What is SDS-PAGE?

**2** Answer Any **Two** of the following : (7 Marks each)

- (a) Discuss theories of tissue fixation and staining techniques.
- (b) Compare and contrast between transmission and scanning electron microscopy.
- (c) Explain in detail principle and applications of autoradiography.

- 3** Answer the following : (7 Marks each)
- (a) Give a detailed account on basic principles of spectroscopy and its applications.
  - (b) Discuss differential centrifugation and density gradient centrifugation and its applications in detail.

**OR**

- (a) Give insights into the role of mass spectrometry in proteome study.
  - (b) Describe various methods used for the elucidation of protein structure.
- 4** Answer the following : (7 Marks each)
- (a) What is the basic difference between FPLC and HPLC? Discuss principle, types, components and applications of HPLC in detail.
  - (b) Give a detailed account on principle, procedure and applications of affinity chromatography.
- 5** Write a note on any **two** of the following : (7 Marks each)
- (a) Blotting techniques.
  - (b) Basic principles of electrophoresis.
  - (c) 2D-PAGE.
  - (d) Gel permeation chromatography.