



B-1603120202010100 Seat No. _____

M. Sc. (Sem. I) (CBCS) Examination

March – 2021

Biochemistry

IBC-1 : Analytical Techniques

Time : 3 Hours]

[Total Marks : 70

Instructions : Answer any **five** questions out of **10**.

- 1** Answer briefly the following questions : **14**
- A. What is the objective of tissue fixation?
 - B. Give the utility of Mass Spectroscopy.
 - C. Describe briefly ESR.
 - D. Explain; chromatography.
 - E. What is centrifugation?
 - F. Write the Principle of Fluorescence Microscopy.
 - G. Differentiate between LC-MS and GC-MS
- 2** Answer briefly the following questions : **14**
- A. Define term: Transmission
 - B. Explain the factors affecting the IR band
 - C. What do you mean by shielding and deshielding in NMR Spectroscopy?
 - D. What is the principle of ion exchange chromatography?
 - E. What is Isoelectric Focusing?
 - F. Explain in brief : SDS-PAGE.
 - G. Write any four applications of centrifugation.
- 3** Answer the following questions : **14**
- A. Explain: Phase contrast microscopy.
 - B. Write about the Principle and Applications of Autoradiography.

- 4** Answer the following questions : **14**
- A. What is difference between stain and dye? Enlist different types of staining and write a note on differential staining.
 - B. Explain Principle, working and application of scanning electron microscopy.
- 5** Answer the following questions : **14**
- A. Explain the Basic Principles of UV Spectroscopy.
 - B. Define ORD. Give the fundamental Principal and application of ORD.
- 6** Answer the following questions : **14**
- A. Give the significance and principle X-Ray Diffraction for Elucidation of 3D Structure.
 - B. Write a note on Mass Spectrometry.
- 7** Answer the following questions : **14**
- A. Explain the instrument and principle of FPLC in detail.
 - B. Discuss the principle of Reverse Phase Chromatography.
- 8** Answer the following questions : **14**
- A. Describe about the Gel permeation techniques.
 - B. Write a note on GC-MS along with its instrumentation.
- 9** Answer the following questions : **14**
- A. Enlist the various types of rotors used for Centrifugation Techniques and explain any two in details.
 - B. Describe the types of centrifugation techniques.
- 10** Answer the following questions : **14**
- A. Write note on agarose Gel electrophoresis along with principles, application, disadvantages and advantages.
 - B. Give the significance and procedure for 2D-Gel electrophoresis.