FACULTY OF SCIENCE
M. Sc. I – Semester Examination, January 2018

Subject: Biochemistry

Paper – III
Bio-Analytical Techniques

Time: 3 Hours

Max. Marks: 80

Note: Answer all questions from Part – A and Part – B. Each question carries 4 marks in Part – A and 12 marks in Part – B.

PART - A (8 X 4 = 32 marks)
(Short Answer Type)

Write a short note on the following:
1. Applications of atomic absorption spectroscopy
2. Principle of mass spectroscopy
3. Gel exclusion chromatography
4. N-terminal sequencing of proteins
5. Density gradient centrifugation
6. Differences between native and SDS-PAGE
7. Phosphor- imaging
8. Isotopes used for labeling nucleic acids

PART - B (4 X 12 = 48 marks)
(Essay Answer Type)

9. (a) Explain the principle, instrumentation and applications of NMR and ORD.
   OR
   (b) Give an account on:
       (i) X-ray crystallography
       (ii) Fluorescence spectroscopy

10. (a) Discuss the principle and applications of HPLC and affinity chromatography
    OR
    (b) Write a note on
        (i) GC
        (ii) Ion-exchange chromatography

11. (a) Describe the principle, instrumentation and applications of ultracentrifugation
    OR
    (b) Give an account on
        (i) DNase-I hypersensitivity mapping
        (ii) Southern blotting

12. (a) Describe the methods used in the detection of radioactivity
    OR
    (b) Explain the role of radio-isotopes in understanding the mechanisms involved in photosynthesis and viral replication

*****