

1059

**B.A./B.Sc. (General) Fourth Semester  
Bio-Chemistry  
Paper – A: Advanced Bio-Chemical Techniques**

**Time allowed: 3 Hours**

**Max. Marks: 45**

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Unit.

x-x-x

I. Attempt the following:-

- a) What is ultrafiltration? What are its applications to biological systems?
- b) Discuss cell sorting.
- c) What is the principle of FACS?
- d) What are the properties of radioactive emissions?
- e) Discuss about nature of radioisotopes?
- f) Discuss various applications of NMR. (6x1½)

**UNIT – I**

- II. a) What is surface tension? What are its applications to biological systems?
- b) Discuss the technique of plant cell culture. (2x4½)
- III. a) Describe the techniques of cell sorting and cell counting.
- b) Write a note on cryopreservation. (2x4½)

**UNIT – II**

- IV. Describe the principle and applications of fluorescence in situ hybridization. (9)
- V. Describe in detail Fluorescence activated cell sorting. (9)

**UNIT – III**

- VI. Describe the labelling of biochemical compounds and autoradiography. (9)
- VII. Discuss the biological hazards of radiation and safety measures in handling radioisotopes. (9)

**UNIT – IV**

- VIII. Discuss the theory and applications of Electron Spin Resonance. (9)
- IX. Discuss the theory and applications of mass spectrometry. (9)

x-x-x