

2053

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. Attempt all parts of a question together.  
x-x-x

I. Give answer of the following:-

- a) Define surface tension.
- b) What is diffusion?
- c) Write the names full name of FISH?
- d) Give the names of two radioactive materials.
- e) Give the names of two Cryopreservation agents?
- f) Write the name of two immunoassays.
- g) What is MALDI?
- h) Write the name of technique based on antibody and antigen interactions.
- i) Write the one application of FRET.

(9x1)

UNIT - I

II. Write short notes on following:-

- (a) Dialysis.
- (b) Animal cell culture.

(5,4)

III. (a) Application of plant culture.

- (b) Ultrafiltration.

(4,5)

UNIT - II

IV. (a) Write the principles of cell sorting methods. Why the cell sorting is important in research?

- (b) What is the fluorescence? Describe the various application of fluorometry? (5,4)

V. (a) Write the various applications of FRET.

- (b) What is FISH technique? Write its application in the genetics.

(5,4)

P.T.O.

(2)

**UNIT - III**

- VI. (a) What is radioactive material? Write the properties of radioactive materials.  
(b) What is the GM counter? Give one example of its application. (5,4)
- VII. (a) Write various safety measures taken during experimentation with radioactive materials.  
(b) What are various applications of radioactive tracers in the study of enzymes? (5,4)

**UNIT - IV**

- VIII. (a) Write the principle of ESR, also mentioned its various applications.  
(b) What is the principle of Mass Spectroscopy? Write application of MALDI-TOF in biological sciences. (4,5)
- IX. (a) Write about the instrumentation of NMR, also give different applications of NMR.  
(b) Write the principle and applications of Atomic Spectroscopy. (5,4)

x-x-x