

1129
M.E. (Biotechnology) First Semester
MEBIO-102: Biotechniques

Time allowed: 3 Hours

Max. Marks: 50

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

x-x-x

I. Answer the following briefly:-

- a) What can a Flow Cytometer tell us about a cell/particle?
- b) What is FRET technique?
- c) Who invented mass spectrometers?
- d) What are isobaric tags?
- e) What is Luminex assay?
- f) Define Resolution.
- g) What is Preflashing?
- h) Define Dead time.
- i) Define Scintillation.
- j) What is FRAP technique? (10x1)

UNIT - I

- II. a) What are the various applications of Surface Plasmon Resonance (SPR) based biosensors?
- b) What is the construction and principle of isothermal titration calorimetry? (2x5)
- III. a) Give a brief account on protein based microarray.
- b) What is the principle of ITRAQ and SILAC approaches? (2x5)
- IV. a) Elaborate on the principle, functioning and various versions of confocal microscopy.
- b) Explain the principle and working of TIRF. (6,4)

P.T.O.

UNIT - II

- V. a) Explain the live /dead specimen staining in light/ fluorescence microscope. Why heavy metal staining is done in SEM? (3+2)
- b) Explain the basic components and construct of a TEM. (5)
- VI. a) Elaborate on any two different next generation sequencing methods?
- b) What is the use of siRNA and miRNA techniques? (2x5)
- VII. a) Discuss the sample preparation criteria for scintillation cocktails.
- b) Discuss the principle of GM counter and its limitations. (4,6)

x-x-x