Exam.Code:1032
Sub. Code: 7562

2063
M. E. (Bio-Technology)
First Semester
ME-BIO-102: Biotechniques

Time allowed: 3 Hours **Max. Marks: 50**

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

x-x-x

1. Answer the following questions briefly:
   a) What are the applications of chromatography in molecular biology studies?
   b) Give two examples of radioactive isotope.
   c) What is the principle of TIRF microscopy?
   d) Why do we use next generation sequencing?
   e) How is RNA sequencing done?
   f) What is Cryoelectron microscopy in simple terms?
   g) Give two applications of DNA microarray.
   h) What is the full form of FISH.
   i) Name two techniques used to analyze protein – protein interaction.
   j) What is forward scatter and side scatter in flow cytometry. 1x10

SECTION A

2. Explain the basic principle, set up and applications of flow cytometry. 10

3a How are specimens prepared for SEM and TEM analysis. 5

b Give an overview on SILAC workflow for proteomic quantitation. 5

4a Write down about different ionization techniques used in mass spectrometry. 5

b Explain the analysis of protein ligand interaction using FRET technique. 5

SECTION B

5. Write a note on basic principle and steps involved in DNA microarray technology. 10

6a Explain therapeutic approaches based on the use of miRNAs and siRNAs. 5

b What is the principle and basic modes of Atomic Force microscopy imaging? 5

7a Explain about any two competing methods of next generation sequencing that have been developed by different companies. 6

b Distinguish between RFLP and RAPD techniques? 4

x-x-x