ME-Ist Dec-24

Exam.Code:1032
Sub. Code: 35392

2124
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 real life examples of Snell's law?
   b) Differentiate between stable and radioisotope.
   c) How does a dark field condenser work?
   d) What is the principle of luminex multiplex assay?
   e) Give two characteristic features of siRNA.
   f) Define forster distance.
   g) What is principle of two photon microscopy?
   h) Define photobleaching.
   i) Define SPR.
   j) What is the illumina method of DNA sequencing? 1x10

SECTION A

2. List the key components of flow cytometer. Explain the function of each component and the process of separation of sub-populations of cells from a heterogeneous population. 10

3a What is the difference between TIRF and epifluorescence? Explain about two main types of TIRF microscopes? 6

b Write down about various applications of affinity chromatography. 4

4a What is principle of confocal microscopy.Write down about its various components and advantages over fluorescence microscopes? 5

b Elucidate yeast two-hybrid system as a method to study protein-protein interaction. 5

SECTION B

5a Explain various techniques for the preparation of DNA micro array chip. 6

b Explain Multiplex FISH and Interphase FISH with examples. 4

6a What are the applications of genetic markers? 4

b Explain principle, parts and applications of Atomic Force microscopy imaging? 6

7a What is the difference between elastic and inelastic electron scattering? How do SEM and TEM produces images? 5

b Explain various steps in biogenesis of miRNA and application of miRNA as therapeutic agent. 5

x-x-x