Exam.Code:1032
Sub. Code: 7562

2123
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 Unit.*

x-x-x

I. Answer the following briefly:-

a) What is the structure of iTRAQ reagent?

b) Why do we need electron microscope when modern light microscopes have become so powerful?

c) What is the 454 method of DNA sequencing?

d) What is the advantage of RNA seq over hybridisation approach?

e) What is the principle of luminex multiplex assay?

f) Explain forster distance.

g) Name the main components of yeast two hybrid system.

h) Give two applications of siRNA.

i) Give advantage of FISH over conventional karyotyping.

j) Which gas is preferred for GM counter and why? (10x1)

UNIT - I

II. a) Derive the relation between electric potential and wavelength of an electron in electron microscope. What are the various phenomena that takes place during electron interaction with thin specimen.

b) Explain screening of protein-ligand Interactions using SPR system. (6,4)

III. a) How does ICAT work? What are the advantages of ICAT technique?

b) Write down about main components of mass spectrometry. (2x5)

IV. Explain how the three core systems of FACS work together to provide cell analysis and cell sorting. (10)

P.T.O.

UNIT - II

V. a) What is the principle and applications of Atomic Force microscopy imaging?
b) Elucidate the main steps involved in a DNA microarray analysis. (2x5)

VI. a) What are three general steps for next generation method of DNA sequencing? What is the difference between emulsion and bridge PCR.
b) What are the steps of chip assay? (6,4)

VII. a) Give basic principle of FISH. Explain application of FISH with examples.
b) Elucidate miRNA processing pathway. (2x5)

x-x-x