Exam.Code:0036
Sub. Code: 0978

1059

B.Sc. (Hons.) Biotechnology
Fourth Semester
BIOT- Sem-IV-II-T: Biophysical and Biochemical Techniques

Time allowed: 3 Hours Max. Marks: 67

***NOTE**: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

I. Attempt the following:

a) What is Lambert- Beer's law? (3)

b) Define fluorescence. (2)

c) What is Stake's shift? (2)

d) Define resolving power. (2)

e) Name any two materials used to form a density gradient. (2)

f) Write the equation for Bragg's law. (2)

g) What are radiotracers? (2)

UNIT – I

II. a) Explain the principle and working of atomic absorption spectrometer.

b) How will you polymerize polyacrylamide gel? Explain. (7,6)

III. a) Write any three applications of spectrofluorimeter.

b) Explain the principle of Raman spectroscopy. (7,6)

UNIT – II

IV. a) Explain different lenses used in bright field microscope.

b) Write the principle and any three applications of phase contrast microscope. (7,6)

V. a) Describe the working of transmission electron microscope.

b) What is isopycnic density gradient centrifugation? (7,6)

UNIT – III

VI. a) Explain the physical basis of crystallization?

b) How is HPLC better than the conventional chromatography? (7,6)

P.T.O.

VII. a) Explain the working of gas chromatography.

b) Write different methods of crystal formation. (7,6)

UNIT – IV

VIII. a) Write the working of a GM counter.

b) What is scintillation cocktail? Explain its components. (7,6)

IX. a) Describe MALDI-TOF mass spectrometer.

b) Explain the principle of mass spectrometer? (7,6)

x-x-x