Exam.Code:0036
Sub. Code: 0978

2072

B.Sc. (Hons.) Biotechnology

Fourth Semester

BIOT- 402-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 principle of ESR? (2)

b) What is circular dichroism? (2)

c) Why is phase contrast microscopy named so. (2)

d) What is an ultracentrifuge? (2)

e) What is a scintillation cocktail? (2)

f) Why X rays are used in crystallography for structure determination? (3)

g) What is the principle of HPLC. (2)

UNIT - I

II. a) Discuss the types of vibrations contributing to IR spectra.

b) Discuss the equipment of spectrofluorimeter. (6,7)

III. a) Discuss the chemical shift in NMR.

b) Describe the principle and applications of SDS PAGE. (6,7)

UNIT - II

IV. a) Discuss principle and applications of density gradient centrifugation.

b) Describe the working and applications of bright field microscope. (6,7)

V. Describe the instrumentation and working of transmission electron microscope. (13)

UNIT - III

VI. a) Describe the role of Bragg's law in X ray crystallography.

b) Discuss how crystals are obtained for X ray crystallography. (7,6)

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VII. Discuss the instrumentation of GLC apparatus. Discuss the applications of the technique. (13)

UNIT - IV

VIII. a) Discuss the technique of autoradiography.

b) Explain how scintillation counter is used for quantitation of radioactivity. (6,7)

IX. a) Discuss the physical basis of mass spectrometry.

b) Describe the electron impact method of ionisafion in MS. (7,6)

x-x-x