Exam.Code:0436
Sub. Code: 3474

1058

M.Sc. (Biotechnology) Second Semester
MBIO-203: Biophysical and Biochemical Techniques

Time allowed: 3 Hours Max. Marks: 80

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 partition chromatography?

b) What is the principle of affinity chromatography?

c) What is chemical shift in NMR?

d) State the equation for Bragg's law?

e) What is a density gradient centrifugation?

f) What is the principle of DISC electrophoresis?

g) Define specific radioactivity?

h) How is quenching harmful in radioactivity determination? (8x2)

UNIT – I

II. a) Discuss the procedure of gel filtration.

b) Discuss the types of interactions employed for elution via affinity chromatography. Explain with an example. (2x8)

III. a) Discuss the instrumentation of GLC.

b) Discuss the mechanism of TLC and state its underlying principle. (2x8)

UNIT – II

IV. a) Discuss the working of a double beam spectrophotometer.

b) Discuss any two ionization methods for Mass Spectrometry. (2x8)

V. a) Discuss a brief procedure for X ray crystallography.

b) Discuss how electronic environment of atoms affects their NMR spectra. (2x8)

P.T.O.

UNIT – III

VI. a) Describe the procedure for density gradient centrifugation.

b) Discuss the method of native PAGE electrophoresis. (2x8)

VII. a) Explain the parts of an analytical ultracentrifuge.

b) Describe the procedure for agarose gel electrophoresis. (9,7)

UNIT – IV

VIII. a) Discuss the technique of Autoradiography.

b) Explain the procedure of Southern blotting. (2x8)

IX. a) Discuss the applications of Radioisotopes.

b) Describe the method and applications of Northern blotting. (2x8)

x-x-x