Exam. Code: 0436
Sub. Code: 3474

1059

M.Sc. (Bio-Technology)

2nd Semester

MBIO-203: Biophysical and Biochemical Techniques

Time allowed: 3 Hours | Max. Marks: 80

NOTE: *Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Unit.*

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I. Attempt the following: -

(a) Gradient Elution

(b) Sedimentation coefficient

(c) Why TEMED is used?

(d) Quantum yield

(e) Correlation between absorbance and transmittance

(f) Bragg's law

(g) Isoelectric focusing technique

(h) Name two radiotracers used for medical or diagnostic purpose. (8×2)

UNIT – I

II. (a) Discuss the principle and procedure for In Exchange Chromatography.

(b) How gel filteration chromatography can be employed for relative molecular mass determination? (8+8)

III. (a) Discuss instrumentation of HPLC.

(b) Discuss detectors used for Gas Chromatography. (8+8)

UNIT – II

IV. (a) Discuss principle and applications of IR spectroscopy.

(b) Highlight the differences between NMR & X-ray crystallography techniques. (8+8)

V. (a) Discuss conditions for deviations from Beer's Law.

(b) Describe working of MALDI-TOF. (8+8)

P.T.O.

UNIT – III

VI. (a) Discuss different types of rotors and their utility; employed for centrifugation.

(b) Explain the procedure for SDS PAGE. (8+8)

VII. (a) Differentiate between rate zonal and isopycnic centriguation.

(b) Explain the procedure for DNA electrophoresis. (8+8)

UNIT – IV

VIII. (a) Explain working of GM counters.

(b) Explain Edman Degradation method for protein sequencing. (8+8)

IX. (a) Explain the procedure for Western Blotting.

(b) Discuss sanger sequencing method. (8+8)

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