

Third Semester B. Sc. Examination

BIOCHEMISTRY

Paper - II

(Biophysical Techniques - I)

Time : Three Hours]

[Max. Marks : 50

- N. .B. : (1) All questions are compulsory.
(2) All question carry equal marks.

1. Describe the components of UV-Visible spectrophotometry. 10

OR

- (a) What are chromophores ? How they differ from auxochromes ? $2\frac{1}{2}$
(b) Discuss the use of Blank in spectrophotometric analysis. $2\frac{1}{2}$
(c) Draw a ray diagram of double beam spectrophotometer. $2\frac{1}{2}$
(d) Why is absorption spectrum specific for a substance. $2\frac{1}{2}$

2. Describe in detail Theory, instrumentation and applications of spectrofluorimeter. 10

OR

- (a) Derive Handerson-Hasselbalch equation for buffers. 5
(b) What are buffers ? Explain the mechanism of buffer action. 5

3. Describe the technique of paper chromatography. What are its applications ? 10

OR

Describe the principle technique and applications of gel filtration chromatography. 10


4. (a) Write a note on ion-exchange resins. $2\frac{1}{2}$
(b) Give the schematic diagram of a HPLC system. $2\frac{1}{2}$
(c) Write a note on buffers used in ion-exchange chromatography. $2\frac{1}{2}$
(d) Discuss the applications of ion-exchange chromatography. $2\frac{1}{2}$

OR

Describe in detail principle, technique and applications of affinity chromatography. 10

5. Answer any Ten of the following :—

- (I) What is meant by absorption maximum ? 1
(II) How is % T (Transmission) related to absorbance (A). 1
(III) State Beer's Law. 1
(IV) Define isoelectric pH. 1
(V) Give any one applications of flame photometry. 1
(VI) What is the main difference between a spectrophotometer and a flame photometer. 1
(VII) Define molecular exclusion limit of a gel. 1
(VIII) Name any one absorbent used in Thin layer chromatography 1

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- (IX) What is void volume ? 1
- (X) What are guard columns ? 1
- (XI) Name any one carrier gas used in gas chromatography. 1
- (XII) What is the use of spacer in affinity chromatography. 1