

NTK/KW/15 –5838

Third Semester B. Sc. Examination

BIOCHEMISTRY

Paper - II

(Biophysical Techniques I)

Time : Three Hours]

[Max. Marks : 50

- N. B. : (1) All questions are compulsory and carry equal marks.
(2) Draw diagram wherever necessary.

1. Draw a flowchart showing instrumentation of a spectrophotometer. Discuss the components of a UV–VIS spectrophotometer.

OR

What is Beer's law ? Derive its equation. Which factors can cause deviations from Beer's law ? 10

2. Describe spectrofluorimetry in detail.

OR

Write notes on

- (a) Henderson Hasselbalch equation. 5
- (b) Titration curve of amino acids. 5

3. Write the principle and technique of TLC. 10

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Contd.

OR

- (a) Write a short note on partition principle and partition coefficient. $2 \frac{1}{2}$
 - (b) What is the principle of gel permeation chromatography? $2 \frac{1}{2}$
 - (c) Write a note on types of gels which can be used for gel chromatography. $2 \frac{1}{2}$
 - (d) Write a short note on concept of plates in chromatography. $2 \frac{1}{2}$
4. Give the principle and applications of ion exchange chromatography. 10

OR

Give the principle and applications of affinity chromatography. 10

5. Solve any **ten** of the following :—

- (i) What is λ_{\max} ? 1
- (ii) What is the function of auxochrome ? 1
- (iii) What is bathochromic shift ? 1
- (iv) What is fluorescence ? 1
- (v) Give two factors which give rise to fluorescence. 1
- (vi) What is isoelectric pH ? 1
- (vii) What is R_f value ? 1

- (viii) What is retention time ? 1
- (x) What is a molecular exclusion limit of a gel ? 1
- (x) Give one example of a cation exchange resin.1
- (xi) What is the full form of HPLC ? 1
- (xii) What is the use of guard column in HPLC ? 1