

KNT/KW/16/5135

Bachelor of Science (B.Sc.) Semester–III (C.B.S.) Examination

BIOTECHNOLOGY

(Biophysical Techniques–I)

Paper — II

Time : Three Hours]

[Maximum Marks : 50

Note :— (1) **All** the questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams wherever necessary.

1. (a) Discuss deviation of Beer's law. 2½
- (b) Write a note on double beam spectrophotometer. 2½
- (c) Discuss Chromophore and Auxochrome with example. 2½
- (d) What is absorption spectrum ? Give its uses. 2½

OR

Describe the principle and instrumentation of UV-Vis spectrophotometry. 10

2. (a) Give the applications of spectrofluorometry. 5
- (b) Describe, briefly applications of UV visible spectrophotometry. 5

OR

(c) Discuss principle of IR spectrometry in detail. 5

(d) Define flame photometry and give its application. 5

3. Explain Gel Filtration chromatography and its application. 10

OR

Describe principle and application of thin layer chromatography. 10

4. Discuss Ion-exchange chromatography. 10

OR

Explain principle and applications of affinity chromatography. 10

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

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|---|---|
| (i) What is visible spectrum of light ? | 1 |
| (ii) What is Lambda Max ? | 1 |
| (iii) What is bathochromic shift ? | 1 |
| (iv) What is meant by nebuliser ? | 1 |
| (v) Which wavelength shows maximum absorption of Nucleic acid in UV spectrophotometer ? | 1 |
| (vi) Name any one fluorescent amino acid. | 1 |
| (vii) Name any two gels used in gel filtration. | 1 |
| (viii) What is partition coefficient ? | 1 |
| (ix) Define R_f value. | 1 |
| (x) Give any one application of Ion-exchange chromatography. | 1 |
| (xi) Name any two types of resins used in ion-exchange chromatography ? | 1 |
| (xii) What is meant by HPLC ? | 1 |