

Bachelor of Science (B.Sc.) (Semester—III) (CBS) Examination**BIOTECHNOLOGY****(Biophysical Techniques—I)****Paper—II**

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams wherever necessary.

1. (a) Discuss the deviation of Beer's law. 2½
- (b) Explain Dual-Wavelength spectrometry. 2½
- (c) Discuss in brief the Molecular orbital theory of absorption of electromagnetic radiation. 2½
- (d) Draw a well labelled diagram of double beam spectrophotometer. 2½

OR

- (e) Differentiate spectrophotometer and colorimeter. 2½
- (f) Explain absorption spectrum and its uses. 2½
- (g) What is extinction coefficient ? 2½
- (h) Define chromophore and auxochrome. 2½
2. Explain flame photometry in detail. 10

OR

- (a) Give an account on application of UV-visible spectrophotometry. 5
- (b) Give the applications of spectrofluorometry. 5
3. What is chromatography ? Give brief account of paper chromatography. 10

OR

- Describe Gel filtration chromatography and its application. 10
4. Describe principle and working of ion exchange chromatography. 10

OR

- Explain principle and application of HPLC. 10
5. Solve any **TEN** of the following (1 mark each) :
 - (I) What is Lambda Max ?
 - (II) What is the role of prism in spectrometer ?
 - (III) Define Beer's law.
 - (IV) Which wavelength is used to quantify DNA in spectrophotometry ?
 - (V) Quartz Cuvette is used in _____ spectrometry.
 - (VI) Which spectrometry technique is used for estimation of sodium and potassium ?
 - (VII) Name any one adsorbant used in TLC.
 - (VIII) Define Partion coefficient.
 - (IX) Name any one type of gel used in gel filtration.
 - (X) What is the use of guard column in HPLC ?
 - (XI) What is a ligand ?
 - (XII) Name any one cation exchanger resin.