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PMM/KS/15–5828

Third Semester B. Sc. Examination

BIOTECHNOLOGY

Paper – II

(Biophysical Techniques – I)

Time : Three Hours] [Max. Marks : 50

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

(2) Draw well labelled diagrams wherever necessary.

1. (a) What is absorption spectrum ? Discuss its uses. $2\frac{1}{2}$

(b) What is the significance of chromophore and auxochrome in spectrophotometry ? $2\frac{1}{2}$

(c) Give the instrumentation of dual–wavelength spectrometer. $2\frac{1}{2}$

(d) Write a note on colorimeter. $2\frac{1}{2}$

OR

(e) Draw a well labelled diagram of double beam spectrophotometer. $2\frac{1}{2}$

(f) What are the deviations of Beer's law ? $2\frac{1}{2}$

(g) Discuss the theory of absorption of electromagnetic radiations. $2\frac{1}{2}$

(h) What is Beer's Law ? Give its significance. $2\frac{1}{2}$

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2. Discuss the applications of uv-visible spectrophotometry.

OR

Discuss the principle, instrumentation and application of absorption flame photometry. 10

3. Describe the instrumentation and application of thin layer chromatography.

OR

Give an account on Gel-filtration chromatography. 10

4. (a) Discuss the applications of ion exchange chromatography. 5

(b) Describe the different types of resins used in ion exchange chromatography. 5

OR

Write notes on :—

(c) Applications of affinity chromatography. 5

(d) Applications of HPLC. 5

5. Solve any **ten** :—

(i) What is Lambda max ? 1

(ii) What is bathochromic shift ? 1

(iii) Give the visible range in nm. 1

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(iv) State the principle of IR. 1

(v) Give one application of mass spectrometry. 1

(vi) What is fluorometry ? 1

(vii) Define partition coefficient. 1

(viii) Give the different types of gels and glass beads used in gel filtration. 1

(ix) What is column chromatography ? 1

(x) What is non–specific ellution ? 1

(xi) What is an amino acid analyzer ? 1

(xii) What is a ligand ? 1

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