

B.Sc. S. Y. (CBCS Pattern) Semester-III
USBCT-C06 - Biochemistry Paper-II : Biophysical and Biochemical Techniques-I

P. Pages : 2

Time : Three Hours



GUG/S/25/11597

Max. Marks : 50

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- Notes : 1. All questions are compulsory.
2. All questions carry equal marks.

1. Describe the mechanism of action of buffers. What is buffer capacity. 10

OR

- a) Write a note on glass electrode. 2½
- b) Explain the nature of titration curve of monobasic weak acids. 2½
- c) Write a note on carbonate-bicarbonate buffer system of blood. 2½
- d) Write the Handerson-Hasselbalch equation & explain how the ratio of salt and acid concentration affects the pH of buffer solution. 2½

2. Describe the basic components of UV-Visible spectrophotometer. 10

OR

- a) What is the use of blank solution in spectrophotometric analysis? 2½
- b) Give the applications of spectrofluorimetry 2½
- c) Write a note on nebulizer in flame photometer. 2½
- d) How can enzyme be assayed spectrophotometrically. 2½

3. Discuss the technique of thin layer chromatography. 10

OR

- a) What is ascending and descending paper chromatography? 2½
- b) Explain the concept of distribution coefficient in gel filtration chromatography. 2½
- c) Write a note on column efficiency and concept of plates. 2½
- d) What are the applications of gel filtration chromatography? 2½

4. Discuss the technique of ion exchange chromatography. 10

OR

- a) What is specific and non specific elution in affinity chromatography? 2½
- b) What is the use of guard column in HPLC? 2½
- c) Explain the principle of affinity chromatography. 2½
- d) Give any three applications of affinity chromatography. 2½

5. Attempt **any ten** of the following (1 marks each) **10**

- a) Define the term Isoelectric pH.
- b) What is p^{ka} of acid?
- c) What are weak acids?
- d) What is meant by absorption maxima?
- e) What are chromophores?
- f) Define Beer's law of light absorption.
- g) Give two examples of gels used in gel filtration chromatography.
- h) What is meant by stationary phase in chromatography?
- i) Give two types of partition forces in chromatography.
- j) What is meant by ligand in affinity chromatography?
- k) What is the use of arm in affinity chromatography?
- l) Name the most suitable technique for amino acid analysis.
