

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/23/11597**

Max. Marks : 50

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

1. What is buffer? Explain the mechanism of buffer action by Henderson-Hasselbalch Equation. **10**

**OR**

- a) Discuss titration curve of weak acid. **2½**
- b) Write short note on buffer capacity **2½**
- c) Discuss carbonate-bicarbonate buffer system of blood **2½**
- d) Discuss determination of pH by pH meter. **2½**

2. Discuss in detail application of UV-VIS spectroscopy. **10**

**OR**

- a) Discuss concept of Beer-Lambert law **2½**
- b) Explain the concept of chromophore **2½**
- c) Write short note on monochromator **2½**
- d) Give the application of spectrofluorometry. **2½**

3. Give the principle and applications of gel filtration chromatography. **10**

**OR**

- a) Write short note on thin layer chromatography. **2½**
- b) Write in short detection techniques for paper chromatography. **2½**
- c) Discuss partition coefficient and nature of forces. **2½**
- d) Write short note on techniques of elution in column chromatography. **2½**

4. Discuss in detail principle and application of affinity chromatography. **10**

**OR**

- a) Discuss principle of ion exchange chromatography. **2½**

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|-----------|--|-----------|
| b)        | Write a note on types of resins in ion exchange chromatography.      | 2½        |
| c)        | Discuss in short Gas chromatography.                                 | 2½        |
| d)        | Write short note on HPLC.  | 2½        |
| <b>5.</b> | Attempt <b>any ten</b> of the following.                             | <b>10</b> |
| a)        | Define isoelectric pH  | 1         |
| b)        | Protein acts as buffer – true or false                               | 1         |
| c)        | What do you mean by strength of acid                                 | 1         |
| d)        | Define extinction coefficient  | 1         |
| e)        | Define auxochrome  | 1         |
| f)        | Give two sources of ultraviolet radiation used in spectrophotometry. | 1         |
| g)        | Define partition coefficient   | 1         |
| h)        | Define retention time  | 1         |
| i)        | Define mobile phase  | 1         |
| j)        | Give two examples of resin used in ion exchange chromatography.      | 1         |
| k)        | Give full form of GCMS.  | 1         |
| l)        | Give one application of gas chromatography.                          | 1         |

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