

Bachelor of Science (B.Sc. Second Year) (CBCS Pattern) Third Semester  
**USBCT-C06 - Biochemistry Paper-II Biophysical and Biochemical Techniques-I**

P. Pages : 2

Time : Three Hours



**GUG/W/18/11597**

Max. Marks : 50

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

1. What is buffer? Derived Henderson - Hasselbalch equation & Explain mechanism of action of buffer. **10**

**OR**

- a) Discuss titration curve of weak acids. **2½**  
b) Write short note on buffer capacity. **2½**  
c) Discuss carbonate-bicarbonate buffer System of blood. **2½**  
d) How pH determined by pH meter? **2½**
2. Discuss in detail applications of UV-VIS spectroscopy. **10**

**OR**

- a) State and explain Beer-Lambert law of light absorption. **2½**  
b) Discuss the concept of chromophore. **2½**  
c) Write a note on monochromator. **2½**  
d) Give the applications of Spectrophotometry. **2½**
3. Give the principle and applications of gel filtration chromatography. **10**

**OR**

- a) Write a note on thin layer chromatography. **2½**  
b) How the separated bands are detected in paper chromatography? **2½**  
c) Discuss partition coefficient & Nature of partition forces. **2½**  
d) Write a note on techniques of elution in column chromatography. **2½**
4. Discuss in detail principle and applications of Affinity chromatography. **10**

**OR**

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

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|----|--------------------------------------|----|
| b) | Give the applications of GCMS.       | 2½ |
| c) | Discuss in short Gas chromatography. | 2½ |
| d) | Write short note on HPLC.            | 2½ |

5. Attempt **any ten** from following.

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|----|--|---|
| 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) | What is column efficiency?   | 1 |
| h) | Define retention time in gel filtration chromatography.              | 1 |
| i) | What is mobile phase?  | 1 |
| j) | Give two examples of resin used in ion exchange chromatography.      | 1 |
| k) | Give full form of G.C.M.S.   | 1 |
| l) | Name two carrier gases used in gas chromatography.                   | 1 |

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