

**M.Sc. DEGREE END SEMESTER EXAMINATION- MARCH 2026**  
**SEMESTER 4 : PHARMACEUTICAL CHEMISTRY**  
**COURSE : 24P4CPHT13EL : BIOCHEMISTRY AND BACTERIOLOGY**  
*(For Regular - 2024 Admission)*

Time : Three Hours

Max. Weights: 30

**PART A****Answer any 8 questions****Weight: 1**

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|-----|---|--------------------|
| 1.  | What are the basic principle components of fermentation technology?                 | (A, CO 4)          |
| 2.  | What are the functions of adrenocorticotrophic hormones?                            | (U, CO 1)          |
| 3.  | Discuss the relevance of sucrose in pharmaceutical chemistry.                       | (U, CO 1)          |
| 4.  | Write a note on the kinetics of enzyme catalyzed reactions?                         | (An, CO 1)         |
| 5.  | What is the role of transketolase in HMP shunt? Name the coenzyme of transketolase. | (R, CO 2)          |
| 6.  | What is the importance of enzyme immobilization?                                    | (Cr, CO 1)         |
| 7.  | What are simple proteins? Give two examples.  | (R, CO 1)          |
| 8.  | Write a note on gene therapy.   | (U, CO 1)          |
| 9.  | Explain the principle of tonicity of a solution                                     | (A, CO 3)          |
| 10. | What is the function of carnitine palmitoyl transferase?                            | (R, CO 2)          |
|     |   | <b>(1 x 8 = 8)</b> |

**PART B****Answer any 6 questions****Weights: 2**

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|-----|--|---------------------|
| 11. | Explain the tertiary and quaternary structure of proteins.   | (U, CO 1)           |
| 12. | Explain the relevance of proteins in pharmaceutical chemistry.   | (U, CO 1)           |
| 13. | Briefly explain tandem mass spectroscopy and the overlap peptide method for amino acid sequencing.                     | (U, CO 1)           |
| 14. | Explain the mechanism of action of carboxypeptidase?   | (U, CO 1)           |
| 15. | Classify three types of RNA's and its biological functions.  | (E, CO 1)           |
| 16. | What are buffer solutions? Which are the different types of buffers? Explain the mechanism of action of acidic buffer. | (A, CO 3)           |
| 17. | Explain the role of pyridoxal phosphate (PLP) on transamination reactions.   | (U, CO 2)           |
| 18. | Discuss the primary and secondary structure of proteins.   | (R, CO 1)           |
|     |  | <b>(2 x 6 = 12)</b> |

**PART C****Answer any 2 questions****Weights: 5**

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|-----|---|---------------------|
| 19. | Describe citric acid cycle? Explain the role of key enzymes in citric acid cycle?   | (R, CO 2)           |
| 20. | Write notes on<br>a) Tetrahydrofolic acid conjugates<br>b) Zymogens<br>c) Coenzyme A  | (U, CO 1)           |
| 21. | Give a comprehensive account of male and female sex hormones.   | (U, CO 1)           |
| 22. | Explain in detail about a) Different stages involved in the bacterial growth and<br>b) Different processes involved in the control of microbial growth. | (A, CO 4)           |
|     |   | <b>(5 x 2 = 10)</b> |

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Describe the structure and functions of biomolecules, amino acids, proteins, enzymes, nucleic acids and hormones.	U	2, 3, 4, 6, 7, 8, 11, 12, 13, 14, 15, 18, 20, 21	28
CO 2	Explain the chemical processes involved in the biological oxidation and metabolism	U	5, 10, 17, 19	9
CO 3	Illustrate the application of buffer systems in pharmaceutical chemistry.	A	9, 16	3
CO 4	Describe the principles of microbiology and immunology	U	1, 22	6

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;