

MBC-001

ASSIGNMENT BOOKLET

**Master Degree Programme
M.Sc in Biochemistry (MSCBCH)**

CONCEPTS OF BIOCHEMISTRY

Valid from January, 2025 to Dec, 2025



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi
New Delhi-110068.**

Dear Student,

Please read the section on assignments in the Programme Guide for Core Courses that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The total marks of all the parts are 100, of which 35% are needed to pass it.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ROLL NO.:

NAME:

ADDRESS:

.....

.....

COURSE CODE:

COURSE TITLE:

ASSIGNMENT NO.:

STUDY CENTRE: **DATE:**

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **Answer sheets received after the due date shall not be accepted.**

We strongly suggest that you retain a copy of your answer sheets.

- 6) This assignment is **valid from 1st January, 2025 to 31st Dec, 2025** and submit it as per the instructions given in the Programme Guide.
- 7) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT
CONCEPTS OF BIOCHEMISTRY

Course Code: MBC-001
Assignment Code: MBC-001/TMA/2025
Maximum Marks: 100

Answer all the questions given below.

1. Define Biochemistry and explain its interdisciplinary nature. Refer to the interactions between biochemistry and allied branches like chemistry, biology, and physics. (5+5) 10
2. Explain the structural features and unique properties of water that make it a universal solvent. Include details about hydrogen bonding and its impact on water's properties. 10
3. Explain the structural organization of amino acids and their classification based on the R group. (5+5) 10
4. What are the primary, secondary, tertiary, and quaternary structures of proteins? Provide examples and explain their significance in protein functionality. 10
5. Write a detailed note on biologically important sugar derivatives with suitable examples and draw their structures. 10
6. Discuss the role of lipids in biological membranes and their importance in maintaining cellular integrity. 10
7. Outline the process of protein purification, including common techniques used. Discuss methods like chromatography and electrophoresis. 10
8. Explain the role of post-translational modifications in proteins. Provide examples of modifications like phosphorylation and glycosylation. (5+5) 10
9. Discuss the role of vitamins as coenzymes in metabolic reactions. Choose three vitamins and describe their biochemical roles and deficiency symptoms. (5+5) 10
10. What is the significance of peptides like vasopressin, oxytocin, and glutathione in biological systems? Discuss their functions and importance. 10

Note: Draw the figures/flowcharts/tables wherever required.