

BBCCT-101

ASSIGNMENT BOOKLET

**Bachelor's Degree Programme
B.Sc. Hons in Biochemistry (BSCBCH)**

MOLECULES OF LIFE

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 assignment is in this booklet, and it consists of three parts, Part A, B and C. 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) Complete each of Part A, Part B and Part C of this assignment separately, and **submit them together.**
- 6) 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.

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

We wish you good luck.

ASSIGNMENT
MOLECULES OF LIFE

Course Code: BBCCT-101
Assignment Code: BBCCT-101/TMA/2025
Maximum Marks: 100

Answer all the questions given below.

1. Define biochemistry and explain its interdisciplinary nature. Provide examples of its integration with other scientific fields. 10 M
2. Explain why water is referred to as the “universal solvent.” Discuss its unique properties and their biological significance. 10 M
3. Describe the structure of a water molecule and explain how hydrogen bonds contribute to its unique properties. 5 M
4. Classify amino acids based on their structure and physicochemical properties. Provide examples for each category. 10 M
5. Illustrate the four levels of protein structure and explain the importance of peptide bonds in maintaining protein stability with suitable diagrams. 10 M
6. Using examples describe the classification of carbohydrates and discuss the significance of glycosidic bonds in polysaccharides. 10 M
7. Explain the role of lipids in biological membranes. How do amphipathic molecules like phospholipids organize in water? 5M
8. Outline the biological functions of water-soluble and fat-soluble vitamins. Provide examples and their roles in metabolism. 5 M
9. Draw and describe the double-helical structure of DNA and explain the role of hydrogen bonding in maintaining its stability. 10 M
10. How does pH influence enzyme activity? Provide examples to illustrate the relationship. 5M
11. Highlight the advancements in biochemical techniques, such as chromatography and NMR, and their impact on understanding biomolecular structures. 10 M
12. Explain the significance of bioinformatics in modern biochemistry. How has it transformed drug discovery and genetic studies? 10 M