BCHET-149

ASSIGNMENT BOOKLET

BCHET-149

Bachelor's Degree Programme
(BSCG)

MOLECULES OF LIFE

Valid from January 1st 2026 to December 31st 2026

School of Sciences
Indira Gandhi National Open University
New Delhi-110 068
2026

Dear Students,

We hope you are familiar with the system of evaluation to be followed for the Bachelor's Degree Programme. At this stage you may probably like to re-read the section on assignments in the Programme Guide for Elective 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 two tutor-marked assignments (TMA) for this course. Both these assignments are in this booklet.

Instructions for Formatting Your Assignments

Before attempting the assignment, please read the following instructions carefully.

1. On top of the first page of each TMA answer sheet, please write the details exactly in the following format:

Enrolment No : .....……

Name : .....…….

Address : .....…….

Course Code : .....…… **…..……..**

Course Title : .....…… **…….**

Assignment No : .....……

Study Centre : ..... **Date : …….....…..**

(Name and Code)

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. Solve Part-A and Part-B of this assignment, and submit the complete assignment answer sheets within the due date.
6. The assignment answer sheets are to be submitted to your Study Centre within the due date. **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, 2026 to 31st December, 2026. If you have failed in this assignment or failed to submit it by 31st December, 2026, then you need to get the assignment for the year 2026, and submit it as per the instructions given in the Programme Guide.
8. You cannot fill the examination form for this course until you have submitted this assignment.

We wish you Good Luck.

ASSIGNMENT
Molecules of Life
Elective Course in Chemistry

Course Code: BCHET - 149
Assignment Code: BCHET-09/TMA-1/2026
Maximum Marks: 100

Answer all the questions given below.

PART-A

1. a) What are the various constituents of cell membrane? Describe the modes by which cell membrane controls the transport of ingoing and outgoing molecules. (5)

   b) Describe the classification of carbohydrates giving examples for each class. (5)

2. a) Explain the significance of carbohydrates as blood group substances. (5)

   b) Describe the physical/chemical ways of detecting unsaturation in fatty acids. How does unsaturation affect the melting points of fatty acids? (5)

3. a) What are prostaglandins? Explain their physiological roles in human beings. (5)

   b) Giving the structures differentiate between a nucleotide and a nucleoside. (5)

4. a) Describe and compare the various forms of DNA and explain the bonds that hold the double helix of the DNA together. (5)

   b) Describe the conversion of G-3-P into pyruvate during the glycolytic process. (5)

5. Write short notes on the following: (10)

   a) Convention in biochemical energetics

   b) Mechanism of muscle contraction

   c) Regulation of glycogen metabolism

PART-B

6. a) Describe the phenomenon of substrate channeling observed in the conversion of pyruvate into acetyl Co-A. (5)

   b) Taking the example of palmitic acid oxidation, explain the energetics of the fatty acid metabolism. (5)

7. a) Name and describe in brief the processes involved in drug action. (5)

   b) Describe the role of enzymes in health sciences.

8. a) Describe the process of DNA replication and illustrate your answer. (5)

   b) What is genetic code? Enlist the characteristics of a genetic code. (5)

9. a) What is meant by operon? Describe the expression process of Lac-operon of *E. coli*. (5)

b) What is meant by drug-receptor complex? Explain the drug-receptor theory of biological activity of a drug. (5)

10. a) describe the steps involved in the energetics of the degradation of fatty acids. (5)

b) Name the methods of determination of amino acids sequence in a protein and describe any one method