

ASSIGNMENT BOOKLET

M.Sc. BIOCHEMISTRY (MSCBCH)

OMICS (Elective course)

Valid from 1st July, 2026 to 30th June, 2027

Last date for the assignment submission is on or before 30th June, 2027.



**School of Sciences
Indira Gandhi National Open University
MaidanGarhi, New Delhi-110068**

Dear Student,

Please read the section on assignments in the Programme Guide of B.Sc. (Hons.) Biochemistry (BSCBCH) that we sent you after your enrolment. A weightage of 30 percent, 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 two parts, Part A and B. It covers all blocks of the course. The total marks of all the parts are 100, of which 35% are needed to pass it.

SPECIFIC INSTRUCTIONS FOR TUTOR MARKED ASSIGNMENTS (TMA)

- 1) Write your Enrolment Number, Name, Full Address, Signature and Date on the top right hand corner of the first page of your response sheet.
- 2) Write the Programme Title, Course Code, Course Title, Assignment Code and Name of your Study Centre on the left hand corner of the first page of your response sheet.

Course Code and Assignment Code may be reproduced from the assignment.

The top of the first page of your response sheet should look like this:

ENROLMENT NO.:	
PROGRAMME TITLE :	NAME:
COURSE CODE :	ADDRESS:
	
COURSE TITLE :	
ASSIGNMENT CODE :	SIGNATURE:
STUDY CENTRE :	DATE:

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

- 3) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.

- 4) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 5) Your answers should be precise.
- 6) Solve questions of the assignment, and submit the complete assignment answer sheets within the due date.
- 7) 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.
- 8) We strongly suggest that you retain a copy of your answer sheets.
- 9) **This assignment is valid by 30th June, 2027.** If you have failed in this assignment or fail to submit it by 30th June, 2027, then you need to get the assignment for the year 2027-28, and submit it as per the instructions given in the Programme Guide.
- 10) You cannot fill the exam form for this course till you have submitted this assignment.

We wish you good luck!

Assignment OMICS

Course Code: **MBCE-017**
Assignment code: **MBCE-017/TMA/2026-27**
Maximum marks: **100**

Note: Attempt all questions. Write answers in your own words.

PART-(A)

1. (a) Write briefly the evaluation of OMICS. [5]
(b) Explain the genome mapping [5]
2. (a) Discuss sequence alignment and its importance. [5]
(b) Describe the Nanopore DNA sequencing [5]
3. (a) Describe Cap analysis of gene expression. [5]
(b) With the help of diagram, explain the Shotgun sequencing. [5]
4. Describe the Data processing in DNA microarray in details. [10]
5. Write short notes on **any two** of the following: [5x2=10]
 - a) *Drosophila Melanogaster* as an experimental genomic model
 - b) Single Cell Transcriptomics
 - c) DNA databank for Japan

PART-(B)

6. Describe the proteomics and its types [10]
7. (a) Explain the MS-MALDI. [5]
(b) What is metabolome? Discuss briefly plant metabolomics. [5]
8. (a) Discuss the GC-MS in metabolomics studies. [5]
(b) Explain the protein microarray. [5]
9. (a) Discuss the pharmacophore features. [5]
(b) Enlist the basic steps of Pharmacist software. [5]
10. Write short notes on **any two** of the following: [5+5=10]
 - a) KEGG
 - b) IMPPAT
 - c) Swiss PDB viewer