

ASSIGNMENT BOOKLET
Bachelor's Degree Programme (B.Sc.)

CELL BIOLOGY

Valid from 1st January, 2025 to 31st December, 2025

**It is compulsory to submit the Assignment before filling in the
Term-End Examination Form.**

Please Note

- You can take electives '56 to 64' credits from a minimum of TWO and a maximum of FOUR science disciplines, viz. Physics, Chemistry, Life Sciences and Mathematics.
- You can opt for elective courses worth a MINIMUM OF 8 CREDITS and a MAXIMUM OF 48 CREDITS from any of these four disciplines.
- At least 25% of the total credits that you register for in the elective courses from Life Sciences, Chemistry and Physics disciplines must be from the laboratory courses. For example, if you opt for a total of 64 credits of electives in these 3 disciplines, at least 16 credits 'out of those 64 credits' should be from lab courses.
- You cannot appear in the Term-End Examination of any course without registering for the course. Otherwise, your result will not be declared and the 'responsibility will be yours'.



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

(2025)

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 for Elective Courses in the Programme Guide 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 (TMA)** for this course.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully.

- 1) On top of the first page of your 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:

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) While solving problems, clearly indicate the question number along with the part being solved. Be precise.
- 6) **This assignment will remain valid for one year from January 1, 2025 to December 31, 2025.** However, you are advised to submit it within **12 weeks** of receiving this booklet to accomplish its purpose as a teaching-tool. Answer sheets received after the due date shall not be accepted.
- 7) **You cannot fill the exam form for this course until you have submitted this assignment.**

We strongly feel that you should retain a copy of your assignment response to avoid any unforeseen situation and append, if possible, a photocopy of this booklet with your response.

We wish you good luck!

ASSIGNMENT
(Tutor Marked Assignment)

Course Code: LSE-01
Assignment Code: LSE-01/TMA/2025
Max. Marks: 100

1. Explain glycolytic pathway with suitable diagram. (10)
2. (a) Describe the structure of mitochondria. (5)
(b) Write the chemical structure of a typical amino acid by labelling its chemical groups. Explain the components of nucleic acids. (5)
3. (a) Make a comparison between simple lipids, compound lipids and derived lipids. (6)
(b) Explain cell membrane fluidity and asymmetry. (4)
4. (a) Differentiate between free diffusion and osmosis. (6)
(b) Describe the active transport process with the help of a sodium-potassium pump. (4)
5. Enlist the common features of a eukaryotic mRNA. Describe the various post-transcriptional modifications that transform a primary transcript into a functional mRNA. (10)
6. (a) With the help of a diagram showing four stages of metabolism for generating $\text{NADH} + \text{H}^+$ and ATP. (5)
(b) Draw the diagram showing the pathways of carbohydrate metabolism. (5)
7. (a) Describe the structure and function of the nuclear envelope. (5)
(b) How is polypeptide chain synthesis initiated in prokaryotes? (5)
8. (a) Explain the process of signalling mediated by cell surface receptors. (6)
(b) Describe the control of the cycle in dividing cells. (4)
9. (a) Explain the molecular theory of recombination. (5)
(b) Describe any two types of cell movement. (5)
10. (a) Describe the components of fluid connective tissue in animals. (7)
(b) What is meristem? Discuss its role in plants. (3)