

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

**Developmental Biology**

**Valid from 1<sup>st</sup> January 2026 to 31<sup>st</sup> December 2026**

**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**

**(2026)**

Dear Student,

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:

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ENROLMENT NO.: .....

NAME : .....

ADDRESS .....

.....

COURSE CODE : .....

COURSE TITLE : .....

ASSIGNMENT NO.: .....

STUDY CENTRE : ..... DATE: .....

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**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, 2026 to December 31, 2026.** 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-06  
Assignment Code: LSE-06/TMA/2026  
Max. Marks: 100

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**Part-1 (Plant Developmental Biology)**

1. Make neat and labelled diagrams of the following: (4×5=20)
  - i) Types of ovules
  - ii) Apomixis types
  - iii) Cross-section of fruit of *Pyrus malus*
  - iv) Storied and non-storied cambium
2. Write short notes on the following: (4×5=20)
  - i) Morphological changes accompanying floral induction,
  - ii) Production of haploids by tissue culture,
  - iii) Abscission of leaves and fruits, and
  - iv) Variants of endosperm.
3. Write short notes on the following : (2½×4=10)
  - i) Morphological changes accompanying floral induction
  - ii) Production of haploids by tissue culture
  - iii) Abscission of leaves and fruits
  - iv) Variants of endosperm

**Part-II (Animal Developmental Biology)**

4.
  - a) Describe the process of metamorphosis in urodeles. (5)
  - b) Describe the various stages in the development of cancer. (5)
5.
  - a) Make a chart to classify the eggs in animals on the basis of: (5)
    - i) amount of yolk (5)
    - ii) location of yolk
  - b) Describe the basic process of oogenesis in animals with the help of suitable diagrams.
6. Giving examples of each, explain the difference between: (10)
  - i) Totipotency and pluripotency
  - ii) Allometric and isometric growth
  - iii) Morpholaxis and epimrphosis
  - iv) Holoblastic and meroblastic cleavage

7. a) With the help of diagrams explain the steps of nuclear transplantation experiment in frog eggs. (5)
- b) Describe the *three* basic types of regeneration seen in animals. Give *one* example for each type. (5)
8. Describe the following briefly: (10)
- i) Role of morphogenetic field in development of eye
  - ii) Role of prothoracic gland in insect metamorphosis
  - iii) Fate of CFU-M, L stem cells in mammals
  - iv) Test for genomic equivalence