

ASSIGNMENT BOOKLET**Bachelor's Degree Programme in Science (B.Sc.)****DEVELOPMENTAL BIOLOGY****Valid from 1st January 2023 to 31st December 2023****It is compulsory to submit the Assignment before filling 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**

(2023)

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:

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, 2023 to December 31, 2023.** 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/2023
Max. Marks: 100

Part-I (Plant Developmental Biology)

1. Differentiate between: (10)
 - i) Heartwood and sapwood
 - ii) Composite and ruminant endosperm
 - iii) Recurrent and non-recurrent apomixis
 - iv) Amoeboid and secretory tapetum
2. a) What is apical dominance? Discuss the role of chemical factors in controlling it. (5)
b) Define polyembryony and describe its various types. (5)
3. Make well labelled diagrams of the following: (10)
 - i) Types of ovules
 - ii) Secondary growth in dicot stem
 - iii) Syngamy and triple fusion
 - iv) Structure of periderm
4. a) What are cambial variants? Describe some of them with examples. (5)
b) Describe the major applications of plant tissue and organ culture. (5)
5. Write short notes on the following: (10)
 - i) Cellular totipotency
 - ii) Commercial cork
 - iii) Physiological effects of two naturally occurring plant growth regulators (PGRs)
 - iv) Parthenocarpy

Part-II (Animal Developmental)

6. a) What are the major differences in the development and differentiation of an egg and a sperm? (3)
b) Define the following terms: (2)
 - i) Morphogenetic movements
 - ii) Epiblast
7. Discuss the differentiation of an erythrocyte from a pluripotent CFU-S cell. (5)
8. Discuss the process of mesoderm induction in amphibian embryos. (5)
9. What is neoteny? Briefly discuss neoteny in different species of urodeles. (5)
What is the significance of neoteny in evolutionary process?

10. Write short notes on: (10)
- i) Interstitial cells of *Hydra*
 - ii) Neoblasts of *Planaria*
11. Explain that cancer is a multicausal and multistep process. (10)
12. How is the placenta formed? What are its functions? (10)