LSE-06

ASSIGNMENT BOOKLET

Bachelor's Degree Programme in Science (B.Sc.)

DEVELOPMENTAL BIOLOGY

Valid from 1st January 2024 to 31st December 2024

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

(2024)

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, 2024 to December 31, 2024**. 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/2024
Max. Marks: 100

Part-I (Plant Developmental Biology)

1. Define megasporogenesis. Why is it considered important for the sexually reproducing plants? (10)

2. Differentate between gametophytic and sporophytic incompatibility. (10)

3. What is vivipary? How does it help the mangrove species to survive in their saline/estuarine habitat? (10)

4. Define dormancy. What is the importance of seed coat in contracting dormancy? (10)

5. Write short note on the following: $(2\frac{1}{2}\times4=10)$
   a) Parthenocarpy
   b) Cellular Totipotency
   c) Senescence of Chloroplasts
   d) Techniques of Plant Tissue Culture

Part-II (Animal Developmental)

6. Describe the following briefly: $(2\frac{1}{2}\times4=10)$
   i) Fate of CFU-M, L stem cells in mammals
   ii) Test of genomic equivalence
   iii) Role of morphogenetic field in development of eye
   iv) Role of prothoracic gland in insect metamorphosis

7. Answer the following briefly: (2×5=10)
   i) List out the different germ layers present in the gastrula.
   ii) Name the three zones from the outer to the inner side of neural retina.
   iii) List the secondary egg envelopes in chick.
   iv) What is blastema? What is its role in the regeneration of the limb in urodele (salamander)?
   v) How does the *Rubella* virus infection in a 4-5 weeks pregnant woman affect the unborn baby?

8. Describe the following briefly: $(2\frac{1}{2}\times4=10)$
   i) Allometric and isometric growth
   ii) Totipotency and pluripotency
   iii) Holoblastic and meroblastic cleavage
   iv) Morphollaxis and epimorphosis

9. Explain with neat, labelled diagrams the following: (4×5=20)

i) Stages in vertebrate spermatogenesis

ii) Circulatory system changes during human development from foetal to infant stage

iii) Incomplete extensive metamorphosis in dragon files

iv) The process of cell death in the control of pattern formation of limbs