

MZOE-005

ASSIGNMENT BOOKLET

M.Sc. (Zoology) Programme

(MSCZOO)

INSECT PHYSIOLOGY AND TOXICOLOGY

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



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

(2025)

Dear Student,

Please read the Section on assignments in the Programme Guide for M.Sc. (Zoology). A weightage of 30 per cent, 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. The total marks for this assignment is 100, of which 40 marks are needed to pass it.

Instructions for formatting your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ROLL 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) Solve this assignment, and **submit the complete assignment answer sheets within the due date.**
- 6) 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. We strongly suggest that you retain a copy of your answer sheets.**
- 7) This assignment is valid from 1st January, 2025 to 31st December, 2025. If you have failed in this assignment or fail to submit it till its validity, then you need to get the assignment for the next year and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the examination form for this course** until you have submitted this assignment.

We wish you good luck.

ASSIGNMENT **(Tutor Marked Assignment)**

Course Code: MZOE-005
Assignment Code: MZOE-005/TMA/2025
Maximum Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it.

1. Name the hormones controlling moulting and metamorphosis in insects. (10)
Describe the hormonal control of moulting and metamorphosis in detail.
2. a). Explain the structure and function of Malpighian tubules in insects. (5)
b). Compare the process of osmoregulation in terrestrial and aquatic insects. (5)
3. a). Explain mechanism of circulation in insects. (5)
b). Discuss the functions of haemolymph. (5)
4. a). Discuss various respiratory methods employed by aquatic insects. (5)
b). Explain the impulse transmission process in insects. (5)
5. a). Explain the hormonal link between flight and egg production with suitable examples. (5)
b). Define the following: (5)
 - i). Spermatogenesis
 - ii). Paedogenesis
 - iii). Polyembryony
 - iv). Parthenogenesis
 - v). Sex determination
6. Explain the different indices of acute toxicity i.e. LD₅₀, LC₅₀ and LT₅₀ and significance of these values. (10)
7. What are organochlorine compounds? Describe their characteristic features and uses. Discuss, why these are considered harmful for the environment? (10)
8. a). What are pyrethroids? How are these different from the pyrethrins? Categorize them based on the cyano group and discuss, their mode of action. (5)
b). Describe the source, active ingredient and uses of neem oil as a safe pesticide. (5)
9. a). How do insect growth regulators (IGRs) function as insecticides? What role do enzyme inhibitors play in the action of pesticides? (4)
b). Explain the different types of hydrolytic processes that help in detoxification of pesticides during extramicrosomal metabolism of pesticides. (6)
10. Define the following terms: (10)
 - i) Biopesticide
 - ii) Nanopesticide
 - iii) Antifeedant
 - iv) Entomopathogenic fungi
 - v) Antidote