MZO-003

ASSIGNMENT BOOKLET

M.Sc. (Zoology) Programme

(MSCZOO)

Comparative Animal Physiology and Biochemistry

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: ……

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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

Course Code: MZO-003
Assignment Code: MZO-003/TMA/2025
Maximum Marks: 100

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

1. a) What is Lineweaver Burk plot? Derive Lineweaver Burk equation from Michaelis-Menten equation. (5)

   b) Write the significance of K_m and V_{max} in enzyme activity. (5)

2. Differentiate between any three of the following: (10)

   i) Competitive inhibition and Non-competitive inhibition

   ii) Artery and vein.

   iii) Active transport and passive transport

   iv) Fed state and fasting State

3. a) What is the effect of pH and temperature on enzyme activity. (5)

   b) Write the characteristic features of the active site. (5)

4. Write short notes of the following: (2.5 x 4 = 10)

   i) Well Fed state

   ii) Allosteric enzymes

   iii) Malpighian Tubules

   iv) Filter Feeding

5. a) Briefly discuss the standard Gibbs energy change. (5)

   b) Write a brief account on the Nernst equation and its significance. (5)

6. a) Explain why ATP is considered as energy currency. (5)

   b) Elaborate the role of the protein complex in the electron transport chain. (5)

7. a) What is the role of the proton gradient in mitochondria? Discuss. (5)

   (b) Explain how lowering blood glucose levels affects the insulin/glucagon ratio. (5)

8. a) Briefly discuss the respiratory response of human lungs to extreme conditions. (5)

   b) Discuss the muscle contraction with a well labelled diagram. (5)

9. a) What is the metabolic fate of ATP in muscle cells. (5)

   b) How absorption of food takes place in the large intestine? (5)

10. a) Briefly discuss the structure and function of F0-F1 ATP synthase (5)

    b) Give a brief account on redox potential using a suitable example. (5)