

**MZO-003**

**ASSIGNMENT BOOKLET**

**M.Sc. (Zoology) Programme**

**(MSCZOO)**

**Comparative Animal Physiology and Biochemistry**

**Valid from 1<sup>st</sup> January, 2024 to 31<sup>st</sup> December, 2024**



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

**(2024)**

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:

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**ROLL NO.:** .....

**NAME:** .....

**ADDRESS:** .....

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**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) 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 1<sup>st</sup> January, 2024 to 31<sup>st</sup> December, 2024. 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/2024  
Maximum Marks: 100

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

1. a) How blood pressure is regulated under three extreme conditions? (5)  
b) What are the five major respiratory conditions? (5)
2. a) Discuss the role of the Na<sup>+</sup>/K<sup>+</sup>ATPase pump in osmoregulation. (5)  
b) Describe three respiratory control mechanisms. (5)
3. a) Explain briefly the role of myosin in muscle contraction. (5)  
b) What is the significance of bile juice in the process of digestion? (5)
4. a) Describe the role of calcium in the regulating muscle contraction. (5)  
b) Why are villi present in the small intestine and not in the stomach? (5)
5. a) How do molecules interact with gustatory receptors to produce distinct taste? (5)  
b) Write the applications of bioluminescence in mankind. (5)
6. a) Describe the mechanism by which electrocytes operate. (5)  
b) Discuss the significance of the brain in glucose metabolism. (5)
7. a) Derive Michaelis-Menten equation. Add a note on the significance of K<sub>m</sub> value. (5)  
b) Describe symmetrical model of Monod, Wayman and Changeux for ligand binding. (5)
8. a) Discuss ping pong model for bi-substrate reaction of enzyme. (5)  
b) Discuss various hormones involved in the regulation of the activity of pyruvate dehydrogenase. (5)
9. a) What is the metabolic process of living things? (5)  
b) Explain the structure and function of ATP synthase. (5)
10. a) Discuss the Nernst equation and its significance. (5)  
b) How glucose homeostasis is maintained? (5)