

QP Code: 23/PT/14/IIA

POST-GRADUATE COURSE

Term End Examination — June, 2023/December, 2023

ZOOLOGY

**Paper-2A : ECOLOGY, ENVIRONMENTAL BIOLOGY &
TOXICOLOGY**

Time : 2 hours]

[Full Marks : 50

Weightage of Marks : 80%

Special credit will be given for precise and correct answer. Marks will be deducted for spelling mistakes, untidiness and illegible handwriting. The figures in the margin indicate full marks.

1. Answer *two* questions : 9 × 2 = 18
- a) What is mutualism ? Explain how mutualism evolved in nature. Describe a basic model of mutualism. 1 + 4 + 4
- b) What is foraging behaviour ? Discuss Optimal Foraging Theory (OFT) mentioning different functional responses with suitable examples. 2 + 7
- c) Explain population regulation in nature. Illustrate population interaction processes. Mention the factors of population equilibrium. 3 + 4 + 2
- d) Distinguish between acclimatization and acclimation. Mention the compounds needed for acclimatory changes. Comment on the statement “all species are always absent from almost everywhere”. 2 + 3 + 4
2. Answer *three* questions : 6 × 3 = 18
- a) Discuss the laws of tolerance. What is phenotypic plasticity ? 3 + 3
- b) Discuss the significance of age distribution as an important population characteristic.

TE/PG(TH)10029

[Turn over

- c) Define the following : 3 × 2
- i) Optimum temperature
 - ii) Cyclomorphosis
 - iii) Thermocline zone.
- d) Give an account of growth rate curve of population. What is meant by carrying capacity ? 4 + 2
- e) Discuss the merits and demerits of Water (Prevention and Control of Pollution) Act, 1974. 3 + 3
- f) Discuss the role of light in an environment with suitable examples.
3. Answer *two* questions : 4 × 2 = 8
- a) Give an outline of niche concept with special reference to its ecological significance.
 - b) Give a concise account of Circadian rhythm with suitable examples.
 - c) Write short notes on the following :
 - i) Photochemical smog
 - ii) Uniparental care in fish. 2 + 2
 - d) Define cardinal temperature and optimum temperature. What is Diapause ? (1½ + 1½) + 1
4. Answer *two* questions : 3 × 2 = 6
- a) What are thermoneutral zone and thermocline zone ? 1½ + 1½
 - b) Discuss the ecological cost analysis for resource utilization in sexual reproduction.
 - c) Distinguish between inter- and intra-specific competition. Give source examples. 2 + 1
 - d) Comment on the following : 1½ × 2
 - i) ROS
 - ii) Mountain sickness.
-