

U.G. 3rd Semester Examination-2025

ZOOLOGY

[MAJOR]

Course Code : ZOO-MJ-T-301

(Ecology and Wildlife Biology)

[NEP-2020]

Full Marks : 40

Time : 2½ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any five of the following: 2×5=10
- a) How does density-dependent regulation promote population stability?
 - b) State the Shelford's Law of tolerance.
 - c) What is meant by ex-situ conservation?
 - d) Define carrying capacity of a population.
 - e) Why large carnivores are often considered umbrella species in conservation planning?
 - f) Distinguish between linear and Y-shaped food chain.
 - g) What are the key assumptions of Lotka-Volterra model?
 - h) What are the levels of ecological hierarchy?

[Turn Over]

2. Answer any two of the following: $5 \times 2 = 10$

- a) What is vertical stratification of a community? Explain its ecological significance. $3+2$
- b) Why an ecotone is often considered a zone of ecological instability despite of having high species diversity? Distinguish between r -selected and k -selected species with example. $2+3$
- c) Distinguish between grazing food chain and detritus food chain. Explain ecological efficiency. $2+3$
- d) State the main objective of the Wildlife (Protection) Act, 1972. Name two scheduled II mammals. $3+2$

3. Answer any two of the following: $10 \times 2 = 20$

- a) Evaluate the effectiveness of protected areas as a tool for wildlife conservation in India. Discuss the limitations of traditional census methods and justify the need for modern techniques such as GIS and remote sensing. $4+3+3$
- b) Critically analyze the concept of ecological niche with reference to resource partitioning. Explain how Gause's exclusion principle operates under natural field conditions rather than laboratory conditions. Support your answer with suitable ecological examples. $3+4+3$

c) Differentiate the faecal matter of ungulates from carnivores. Elaborate the causes and consequences of human wildlife conflict emphasising elephant related issues in India. What are the challenges of elephant conservation? $3+4+3$

d) Explain the structure and significance of life tables and survivorship curves in population ecology. How can these tools be used to predict population trends and conservation priorities? $6+4$