

QP Code: 22/PT/14/IIA

POST-GRADUATE COURSE

Term End Examination — June, 2022/December, 2022

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) Discuss Sely's concept of stress and general adaptation syndrome. Describe the mechanism of homeostatic control of body syndrome. 5 + 4
 - b) Give a brief account of changes in global temperature. Mention the International initiatives for mitigating global temperature. What do you mean by 'brown air' and 'grey air' ? 3 + 4 + 2
 - c) What is ecological model ? What are the major objectives of ecological model ? Give an example of application of ecological model. 2 + 4 + 3
 - d) Explain Verhulst-Pearl logistic growth model with case studies — one from field and one from laboratory studies.

2. Answer *three* questions : 6 × 3 = 18
 - a) What are the different forms of mating system in animal kingdom ? Explain mating strategy in the light of John Maynard Smith Model, 1977. 3 + 3

- b) "Population equilibrium as a dynamic interplay between biotic potential and environmental resistance." Discuss.
- c) Discuss the merits and demerits of Environment Protection Act, 1986. 3 + 3
- d) Discuss the role of temperature in an environment with suitable examples.
- e) Define predation. What role does predation play in nature ? What is the main difference between predation and parasitism ?
2 + 2 + 2
- f) Discuss the law of tolerance. What is phenotypic plasticity ? 3 + 3
3. Answer *two* questions : 4 × 2 = 8
- a) Give a brief note on Circadian rhythm with suitable example.
- b) Write a short note on three basic types of survivorship curves.
- c) Give an outline of niche concept with special reference to its ecological significance.
- d) Write brief notes on :
- i) Cellular stress response
- ii) Molecular chaperons. 2 + 2
4. Answer *two* questions : 3 × 2 = 6
- a) Illustrate the 'rain shadow' effect with a suitable example.
- b) Distinguish between continuous model and discrete model.
- c) Write a short note on 'environmental estrogens'.
- d) What do you mean by :
- i) Mountain sickness ? 1½
- ii) Arsenic poisoning ? 1½
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