Total number of printed pages–4

1 (Sem–4) ZLG 3

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2025

ZOOLOGY

Paper : ZLG0400304

(Principles of Ecology and Evolution)

Full Marks : 45

Time : Two hours

The figures in the margin indicate full marks for the questions.

Write the answer to the ***two Parts*** *in* ***separate books.***

Q. No. **1** *is* ***compulsory*** *for both* **Part–A** *and* **Part–B**.

Part–A

(Principles of Ecology)

1. Choose the correct answer : 1×3=3

   (a) _____ is the study of the ecology of a single species.

   (i) Autecology

   (ii) Oncology

   (iii) Synecology

   (iv) All of the above

(b) _____ consists of different populations living together and interacting with one another as competitors, predators and prey etc.

(i) Community
(ii) Organism
(iii) Ecosystem
(iv) Biome

(c) Which of the following is NOT a true characteristic of a population ?

(i) Natality
(ii) Mortality
(iii) Sex-ratio
(iv) Stratification

2. Write short notes on : ***(any three)*** 2×3=6

(a) Synecology

(b) Energy flow in an ecosystem

(c) Gause's Principle of competitive exclusion

(d) Ecotone

(e) Food Web

3. Answer briefly : ***(any two)*** 5×2=10

(a) Explain the different types of functional attributes of a ecosystem.

(b) Discuss the concepts of life table and survivorship curve. 2½+2½=5

(c) What do you understand by the term 'community' ? What are the characteristics of a community ? Briefly highlight the structure of a community. 1+2+2=5

(d) What do you understand by the term 'ecosystem' ? Write briefly on *any two* types of ecosystems with necessary examples. 1+2+2=5

4. Answer elaborately : ***(any one)*** 10×1=10

(a) Define biotic potential. What is population regulation ? Discuss the density-dependent factors of population regulation. 1+2+7=10

(b) What is ecological succession ? Explain the different types of succession processes highlighting necessary examples. Briefly add a note on *any one* important theory related to the formation of a climax community. 2+6+2=10

Part–B
(Evolution)

1. Choose the correct answer : 1×2=2

(a) Which one of the following is a protocell ?

(i) Coacervate
(ii) Microsphere
(iii) Tobacco Mosaic Virus
(iv) Both *(i)* and *(ii)*

(b) Which era is considered as the age of reptiles in the geological timescale?

(i) Cenozoic

(ii) Mesozoic

(iii) Paleozoic

(iv) Proterozoic

2. Write short notes on : ***(any two)*** 2×2=4

(a) Lamarckism

(b) RNA World Hypothesis

(c) Founder effect

(d) Selection coefficient

3. Answer briefly : ***(any two)*** 5×2=10

(a) Briefly highlight the pattern of evolution of horse with necessary diagrams.

(b) What do you understand by chemogeny with respect to origin of life? Briefly explain the possible pathways of origin of basic biomolecules. 1+4=5

(c) What do you understand by genetic drift? Explain briefly with appropriate examples. 1+4=5

(d) What is the principle behind the establishment of Hardy-Weinberg Law? Derive the Hardy-Weinberg Law with any example of your choice.
