



- (iii) Grazing food chain and Detritus food chain
- (iv) Ex situ conservation and In situ conservation
- (v) Dispersion and Dispersal.

(c) Fill in the blanks :

4

(i) Animal eating on dead and decaying matter are called.....

(ii) A group of different species living in a particular habitat and interacting together is known as.....

(iii) The last community to develop during succession is called the.....

(iv) Animal and other living things that feed on plants and on each other are called.....

(d) Name the scientist associated with the following terms :

4

(i) Law of Tolerance

(ii) Life Table

(iii) Exponential Growth curve

(iv) Ecosystem

(e) State whether the following statements are True or False : 4

(i) Commensalism describes a relationship between two organisms where one benefits and the other is harmed.

(ii) Pioneer is the first community in succession.

(iii) Grazing food chain is dominant in aquatic ecosystem.

(iv) The term Ecology was coined by A. G. Tansley.

2. (a) What is Ecotone ? Why is it called as zone of stress ? 6

(b) Describe the density dependent and independent factors of population regulation. 6

3. (a) Describe Verhulst-Pearl equation of population growth. 6

(b) What is biogeochemical cycle ? Describe the role of microbes in Nitrogen cycle. 6

4. (a) Describe different types of Survivorship curves with examples. 6

(b) Explain the Y shaped Energy Flow model in the ecosystem with the help of suitable examples. 6

5. (a) Explain the Gause's principle with the help of suitable examples. 6
- (b) What are r and k- related species ? Explain. 6
6. (a) Describe the Human modified Ecosystem. 6
- (b) Describe the various components of any *one* Ecosystem with the help of a suitable diagram. 6
7. Write short notes on any *three* of the following : 3×4
- (a) Food web
- (b) Ecological Efficiency
- (c) Ecological pyramids
- (d) Community stratification

[This question paper contains 4 printed pages.]

②

Your Roll No. 2019

Sr. No. of Question Paper : 8602

J

Unique Paper Code : 32231101

Name of the Paper : Non-Chordates I: Protists to  
Pseudocoelomates

Name of the Course : B.Sc. (H) Zoology

Semester : I

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all including Question No. **1** which compulsory.
3. Please attempt various parts of a question at one place only.

1. (a) Define the following terms (**Any three**) :

(i) Polyembryony

(ii) Metachronal rhythm

P.T.O.

(iii) Bilateral symmetry

(iv) Rostellum (3)

(b) Differentiate between the following pairs of terms

**(Any Four) :**

(i) Protandry and Protogyny

(ii) Endomixis and Autogamy

(iii) Trophocytes and Thesocytes

(iv) Protostomia and Deuterostomia

(v) Gonozoids and Gonophores (8)

(c) Give exact location and functions of the following  
**(Any four) :**

(i) Penial spicules

(ii) Trichoeysts

(iii) Myonemes

(iv) Pyrenoids

(v) Acetabulum

(8)

(d) Write the scientific name of the following organisms and classify each up to classes.

(i) Sea pen

(ii) Venus' flower basket

(iii) Portugese-man-of-war

(iv) Sea anemone (8)

2. (a) Give a detailed account of the life history of *Plasmodium vivax* in its vector. (6)

(b) Briefly discuss the different modes of asexual reproduction in Protista. (6)

3. Discuss the canal system present in Porifera and write its importance. (12)

4. Give a detailed account of different types of coral reefs in Cnidaria. Describe various theories of its formation. (12)

5. Explain the life cycle of a digenetic cestode with suitable diagrams. Add a note on its adaptations for parasitic mode of life. (12)

6. What is metagenesis? Explain the phenomenon in brief with reference to the life cycle of *Obelia*. (12)
7. (a) Describe the life cycle of *Ascaris lumbricoides* with the help of well labelled diagram. (6)
- (b) Give a detailed account of locomotory organelles in flagellates. How do these organelles help in locomotion? (6)
8. Write short notes on **any three** of the following :
- (a) Affinities of Ctenophora
- (b) Larval stages of *Fasciola hepatica* in secondary host
- (c) Polymorphism in hydroids
- (d) Conjugation in *Paramecium*
- (e) Sexual reproduction in *Sycon* (12)

[This question paper contains 4 printed pages.]

③

Your Roll No. 2019

Sr. No. of Question Paper : 8622

J

Unique Paper Code : 32231102

Name of the Paper : Principles of Ecology

Name of the Course : B.Sc. (Hon) Zoology

Semester : I

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all. Question No. 1 is compulsory.

1. (a) Define the following :

(i) Guilds

(ii) Restoration

(iii) Edge Effect

(iv) Hypervolume Niche

(v) Resilience

(5)

P.T.O.

(b) Distinguish between the following :

- (i) Unitary and Modular population
- (ii) Amensalism and Commensalism
- (iii) Semelparity and Iteroparity
- (iv) Scramble and Contest competition (8)

(c) Explain the following statement :

- (i) Dynamic life tables are the most accurate types of life tables.
- (ii) Shannon-Weiner diversity Index is low in a polluted water body. (4)

(d) Name the scientists associated with the following terms :

- (i) Competitive exclusion principle
- (ii) Life table
- (iii) Climax pattern theory
- (iv) Trophic Niche (4)

(e) Fill in the blanks :

- (i) The terrestrial biome with highest level of primary productivity on earth is \_\_\_\_\_ .

(ii) \_\_\_\_\_ is the process by which plants release phytochemicals directly into their surrounding environment, inhibiting seed germination and growth of established neighboring species.

(iii) In autogenic succession, the biomass/production ratio will \_\_\_\_\_ .

(iv) The \_\_\_\_\_ was the first Biosphere Reserve established in India in 1986. (4)

(f) Illustrate the following with the help of diagrams (no description required):

(i) Types of survivorship curves

(ii) Exponential growth curve (2)

2. (a) Describe density dependent regulation of a population.

(b) Briefly describe Shelford's Law of Tolerance with the help of suitable examples. (8,4)

3. (a) Describe various possible outcomes of inter-specific competition with graphical representation and equations.

(b) Differentiate between r-selected and k-selected species. (9,3)

4. (a) Describe the Universal energy flow model with the help of diagrams.
- (b) Briefly describe various factors responsible for the loss of biodiversity. (6,6)
5. (a) Describe Lotka-Volterra model for predation with the help of diagrams and equations.
- (b) Describe the role of microbes in Nitrogen cycle. (8,4)
6. Write short notes on **any three** of the following :
- (a) Application of ecology in wildlife conservation
- (b) Global climate change and its mitigation
- (c) Temperature as a limiting factor
- (d) Vertical stratification in an aquatic ecosystem
- (e) Raunkaier's life forms (4,4,4)