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Your Roll No.....

Sr. No. of Question Paper : 1558

Unique Paper Code : 2232011101

Name of the Paper : Non Chordata-Protista to
Pseudocoelomates (DSC-1)

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

Semester : I

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **four** questions including Question No. 1 which is compulsory.
3. Draw well-labelled diagrams wherever necessary.

1. (i) Define the following terms (**any four**) : (4)

(a) Osculum



(b) Bilateral Symmetry

(c) Plasmotomy

(d) Ootype

(e) Kinty

(ii) Differentiate between the following pairs (**any two**) : (4)

(a) Schizogony and Sporogony

(b) Monogenea and Digenea

(c) Nematocyst and Trichocyst

(iii) Match the Columns : (4)

- | | |
|---------------------------|----------------------|
| (a) Pinacocytes | 1) <i>Hydra</i> |
| (b) Amphids | 2) <i>Ctenoplana</i> |
| (c) Comb Plates | 3) Sponges |
| (d) Gastrovascular cavity | 4) Nematoda |

(iv) Give the exact location and one function of each of the following (**any three**) : (3)

- (a) Pyrenoids
- (b) Acetabulum
- (c) Colloblast cells
- (d) Pneumatophore

2. (a) Why man acts as primary host of *Plasmodium*?
Give the illustrated account of life history of malarial parasite in man.
- (b) Describe the process of conjugation in *Paramecium* and discuss its significance. (9+6)
3. (a) Give the general characteristics of Phylum Porifera.
- (b) Give an account of different types of canal systems in Porifera and give its significance. (5+10)
4. (a) Describe Polymorphism in Cnidaria. Comment upon its significance.
- (b) Give an outline classification of phylum Cnidaria with characters and examples of each class. (9+6)

5. (a) Give a detailed account of parasitic adaptations in Helminthes.
- (b) Give graphic life cycle of *Taenia solium*.
(10+5)
6. Write short notes on **any three** of the following :
(15)
- (a) Course of migration of *Ascaris* larva within its host body.
- (b) Coral reefs.
- (c) Asexual reproduction in protozoa.
- (d) Compare and contrast flatworms with roundworms.

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Your Roll No.

Sr. No. of Question Paper : 1596

Unique Paper Code : 2232011102

Name of the Paper : DSC-2 Biology of Cell :
Structure and function

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

Semester : I

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

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

1. (a) Define : (1×3)

(i) Osmosis

(ii) Aquaporins

P T O

(iii) Glycocalyx

(b) Write exact location and function of the following
(Any three) : (1×3)

(i) Lamins

(ii) Cadherins

(iii) Flippase

(iv) Signal Peptide

(c) State the contributions of (any three) : (1×3)

(i) Gorter and Grendel

(ii) Benda

(iii) Peter Mitchell

(iv) Tim Hunt, Paul Nurse, L H Hartwell

(d) Fill in the blanks : (1×4)

(i) _____ organelle is also referred to as suicidal bag.

(ii) A structure found within the nucleus contains much RNA, this structure is called _____ .

(iii) _____ is an intracellular protein that release calcium from within the lumen of Endoplasmic reticulum.

(iv) The effector protein in GPCR that releases cAMP is _____ .

(e) Expand the following : (1×2)

(i) MTOC

(ii) NPC

2. (a) Write an account on the structure and function of mitochondrial respiratory chain. (6)

(b) Why is Golgi apparatus termed as the “Post Office of the Cell”? Discuss with suitable diagram. (6)

(c) Distinguish between co-translational and post-translational transport of proteins. (3)

3. (a) Explain with diagram the events that regulate the cell cycle. (9)

(b) Distinguish between microfilaments and intermediate filaments. (3)

- (c) Explain the Endosymbiotic theory. (3)
4. (a) Explain GPCR pathway with any one secondary messenger. (7)
- (b) Discuss role of protein glycosylation within ER. (5)
- (c) Distinguish between Passive and Facilitated diffusion. (3)
5. (a) Explain the assembly of microtubules and its role in cellular mobility. (8)
- (b) What are the polymorphic forms of Lysosomes? (4)
- (c) Enumerate with diagram the organization within nucleolus. (3)
6. (a) What are the major cell-to-cell interactions? (6)
- (b) Comment with diagram upon the transport across nucleus. (6)
- (c) What is euchromatin and how it is different from heterochromatin? (3)

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Your Roll No.....

Sr. No. of Question Paper : 1634

Unique Paper Code : 2232011103

Name of the Paper : DSC-3, Concepts of Ecology

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

Semester : I UGCF

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

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

1. (a) Define the following : (3)

- (i) Autecology
- (ii) Modular population
- (iii) Detritus food chain



(b) Distinguish between the following :

(6)

- (i) Pioneer and climax community
- (ii) Mutualism and Amensalism
- (iii) Physiological and realized mortality

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

(4)

- (i) Types of survivorship curves
- (ii) Patterns of dispersion

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

(2)

- (i) Exponential population growth
- (ii) Ecosystem
- (iii) Law of tolerance
- (iv) Food chain

2. (a) Explain with suitable diagrams and equations the exponential and logistic growth forms of population.

(8)

- (b) Describe various density dependent factors that regulate the population size near carrying capacity level. (7)
3. (a) What are the main causes of wildlife depletion in India? What are the different strategies for wildlife conservation? (9)
- (b) What is environmental impact assessment? Add a note on its significance. (6)
4. (a) What is competitive exclusion principle? Briefly describe the experiments conducted by Gause to explain this principle in the laboratory. (9)
- (b) Differentiate between numerical and functional response of the predator. (6)
5. (a) Explain the Universal and Y-shaped energy flow model with the help of suitable diagrams. (9)
- (b) Discuss the various types of ecological pyramids. (6)

6. Write short notes on **any three** of the following :

(3×5)

(a) Nitrogen cycle

(b) Raunkiaer's life forms

(c) Ecological efficiency

(d) Protected areas

(e) Temperature as a limiting factor

(f) Theories of climax in succession

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Your Roll No.....

Sr. No. of Question Paper : 4319

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 : (6)

(i) Iteoparity

(ii) Character displacement

(iii) Mutualism



(v) Niche

(vi) Isocline

(b) Distinguish between the following : (8)

(i) Species richness and species abundance

(ii) Autecology and Synecology

(iii) Unitary and Modular population

(iv) Life expectancy and life span

(c) Give the location of following National parks/
Sanctuaries in India : (5)

(i) Corbett National Park

(ii) Ranthambore National Park

(iii) Kuno National Park

(iv) Kaziranga National Park

(v) Keibul Lamjao National Park

(d) Fill in the blanks : (4)

(i) The term Ecology was coined by

(ii) The ecological factors related to soil and substratum is called _____ factors.

(iii) Dead plant and animal remains are called _____.

(iv) Autotrophic planktons are called _____.

(e) Draw well labelled diagrams (no description) of the following :

(i) Exponential and Logistic growth curves

(ii) Types of survivorship curves (4)

2. (a) With the help of a suitable diagram explain the Gause's Competition exclusion principle. (6)

(b) Explain the different stages of primary succession in an ecosystem. Highlight the differences among autotrophic succession and heterotrophic succession. (6)

3. (a) Explain the various *in-situ* and *ex-situ* conservation strategies that are adopted for the protection of wild animals. (8)

- (b) Differentiate between r -selected and k -selected species. (4)
4. (a) Define a food web. Discuss with the help of suitable diagram how a detritus food chain differs from a grazing food chain. (6)
- (b) Explain the Nitrogen cycle with the help of a suitable diagram. (6)
5. (a) Describe Lotka-Volterra model for predation with the help of diagrams and equations. (8)
- (b) Briefly describe vertical stratification in an aquatic ecosystem. (4)
6. Explain the density - independent and density-dependent factors involved in regulating a population. (12)
7. Write short notes on **any three** of the following :
- (a) Global climate change and its mitigation
 - (b) Y-shaped food chains
 - (c) Ecological pyramids
 - (d) Shelford's law of tolerance
 - (e) Coral reefs (12)