

Unique paper code : 32231201  
 Name of the paper : Non-Chordata-II: Coelomates  
 Name of the course : B.Sc. (HONS.) ZOOLOGY  
 Semester : II  
 Maximum Marks : 75  
 Time : 3 Hours



(Write your Roll No. on the top immediately on receipt of this question paper)

Answer **Five** questions in all.

Question No.1 is compulsory.

Q1. (a) Define:

1x5=5

- (i) Tagmosis
- (ii) Ecdysis
- (iii) Trophallaxis
- (iv) Detorsion
- (v) Epitoky

(b) Name the phylum in which the following structures are present and give one function of each:

1x4=4

- (i) Osphradium
- (ii) Pedicellaria
- (iii) Ocellus
- (iv) Typhlosole

(c) Differentiate between the following terms, giving examples:

2x3=6

- (i) Book lungs and Book gills
- (ii) Brachiolaria and Ophiopleutus larvae
- (iii) Apposition and Superposition image

(d) Give the scientific names and classify upto classes giving distinguishing characteristics of each category:

2x4=8

- (i) King crab
- (ii) Paddle worm
- (iii) Devil fish
- (iv) Brittle star

(e) Match the following:

- |                 |                  |
|-----------------|------------------|
| (i) Mollusca    | (a) Soldier      |
| (ii) Leech      | (b) Doliolaria   |
| (iii) Nasute    | (c) Mantle       |
| (iv) Echinoderm | (d) Ectoparasite |

- Q2.** What is meant by Eusociality? Discuss social organisation in any **one** insect. 12
- Q3.** (a) Explain the structure of gills in Mollusca and discuss the mechanism of respiration in Gastropods. 8  
(b) How does pearl formation occur in Bivalves? 4
- Q4.** Describe the Water Vascular System in Asterias with the help of labelled diagrams. Add a note on its functional role in locomotion. 12
- Q5.** (a) Give an account of metamorphosis in Insects and discuss its hormonal control 8  
(b) Discuss the affinities of Echinoderms with chordates. 4
- Q6.** (a) Draw neat labelled diagrams of the excretory organs of Annelids and explain their working. 8  
(b) Justify the statement that *Peripatus* is a connecting link between Annelida and Arthropoda 4
- Q7.** (a) Discuss torsion in gastropods 6  
(b) Explain the structure of compound eye and types of vision in Arthropods 6
- Q8.** Write short notes on **any three** of the following: 3x4=12  
(a) Metamerism  
(b) Tracheal respiration in Insects  
(c) Structure of the compound eye  
(d) Evolutionary significance of Trochophore

[This question paper contains 3 printed pages.]

(2)

S. No. of Q. P. : 4673

Unique Paper Code: 32231202

Name of the Paper: Cell Biology

Name of the Course: B.Sc. (Hons.) Zoology (H.O.C.T.)

Semester: II

Duration: 3 Hours

Your Roll No. 2023

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.
3. Question No. 1 is compulsory.

1. (a) Define:

(4)

- (i) G. Phase
- (ii) Viroid
- (iii) Oxidative phosphorylation
- (iv) Chromatin

(b) Differentiate between the followings:

(8)

- (i) Glycophorin and Ribophorin
- (ii) Carrier Protein and Channel Protein
- (iii) Prokaryotic cell and Eukaryotic cell
- (iv) Intrinsic and Extrinsic proteins

(c) Write the contribution/s of the following scientists:

(4)

- (i) Frye and Edidin
- (ii) Sabatini and Blobel
- (iii) Singer and Nicolson
- (iv) Paul Nurse

(d) Give the location and significance of the following:

(4)

- (i) Cytochrome Oxidase
- (i) Signal peptidase
- (iii) Catalase
- (iv) Clathrin

(e) Expand the following:

(3)

- (i) Cdks
- (ii) FRAP
- (iii) GERL

(f) Fill in the blanks:

(4)

(i) ..... is involved in protein folding in RER.

(ii)..... is the organelle involved in packaging and cell secretion.

(iii)..... is an lysosomal storage disease.

(iv)..... is the phospholipid present in the plasma membrane without glycerol backbone.

2. (a) Explain the process of signal transduction through GPCR.

(6)

(b) Describe the assembly of microtubules and draw the structure of cilia.

(6)

3. (a) Give an account on the role of RER and Golgi complex in cell secretion.

(8)

(b) What are peroxisomes? Write a note on its biogenesis and functions.

(4)

4. (a) Write briefly about nucleolus and the biogenesis of ribosome.

(8)

(b) Justify that the mitochondria is a semiautonomous organelle.

(4)

5. (a) Write about the nucleosomal organization of chromatin fibre.

(6)

(b) What is cell cycle? Explain the role of check points in cell cycle regulation.

(6)

6. (a) Describe the arrangement of various complexes involved in electron transport system in mitochondria.

(8)

(b) Write about drug detoxification in liver.

(4)

7. (a) Discuss the transport of small molecules by passive diffusion, facilitated diffusion and ion channels.

(8)

(b) Describe the structure of Plasma Membrane. Discuss the transport of small molecules by passive diffusion, facilitated diffusion and ion channels.

(4)

8. Write short notes (Any **Three**):

(4x3=12)

(a) Fluid Mosaic Model

(b) Nuclear Pore Complex

(c) Lysosome

(d) Gap Junctions

(e) cAMP pathway