This question paper contains 3 printed pages.

Your Roll No. .....

No. of Ques. Paper : **6740** **HC**

que Paper Code : **32231201**

ne of Paper : **Non-Chordata-II— Coelomates**

ne of Course : **B.Sc. (Hons.) Zoology**

ester : **II**

ation : **3 hours**

imum Marks : **75**

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

Attempt five questions in all.
Question No. 1 is compulsory.
Attempt all parts of a question in one place.

a) Define the following terms:

(i) Epitoky

(ii) Sclerotization

(iii) Enterocoel

(iv) Cephalization. 4

b) State whether true or false:

(i) Annelids have an open blood vascular system.

(ii) The body cavity of molluscs is a haemocoel.

(iii) Arachnids do not possess antennae.

(iv) All echinoderms are motile. 2

P. T. O.

6740

(c) Differentiate between the following terms:

(i) Uniramous and Biramous appendages

(ii) Ophiopluteus and Echinopluteus larva

(iii) Ctenidia and Taenidia

(iv) Ocellus and Ommatidium.

(d) Give the scientific names of the following an classify upto class. Write the identifying featur of their phylum.

(i) Sea lemon

(ii) Clam worm

(iii) Root headed barnacle

(iv) Sea urchin.

(e) Give the location and any *one* function of th following:

(i) Pedicellaria

(ii) Statocyst

(iii) Osphradia

(iv) Parapodia

(v) Hectocotylized arm.

2. (a) Explain the evolutionary significance Trochophore larva.

(b) Describe the structure of gills in Gastropods an discuss the mechanism of respiration in them.

Give a detailed account of excretion in the phylum Annelida giving suitable diagrams. 12

Define Eusociality. What are the prerequisites of a social organisation? Discuss social life in termites. 12

(a) Define metamorphosis. Discuss metamorphosis in insects giving suitable examples and add a note on its hormonal control. 8

(b) Discuss the affinities of phylum Onychophora. 4

(a) Describe the structure of the water vascular system in starfish with the help of diagrams. 8

(b) Explain the process of pearl formation in bivalves. 4

Write short notes on any *three*:

(a) Metamerism

(b) Image formation by compound eyes

(c) Affinities of echinoderms with Chordates

(d) General characters of phylum Annelida

(e) Evolution of coelom. 4,4,4

This question paper contains 4 printed pages.

Your Roll No. .....

No. of Ques. Paper : **6741** **IIC**

Unique Paper Code : **32231202**

Name of Paper : **Cell Biology**

Name of Course : **B.Sc. (Hons.) Zoology**

Semester : **II**

Duration : **3 hours**

Maximum Marks : **75**

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

Attempt five questions in all.
Question No. 1 is compulsory.

1. (a) Define:

(i) Viroid

(ii) Lamins

(iii) Aquaporins

(iv) Glycocalyx. 1×4

(b) Differentiate between the following pairs:

(i) Microfilaments and Microtubules

(ii) Tight and Gap junctions

(iii) Passive and Facilitated diffusion

(iv) Peripheral and Integral proteins. 2×4

(c) Write exact location and functions of the following:

P. T. O.

(i) MCM proteins

(ii) Cadherins

(iii) TOM proteins

(iv) Centrosome.

(d) State the contributions of:

(i) Gorter and Grendel

(ii) Benda

(iii) Christian de Duve

(iv) Camillo Golgi.

(e) Fill in the blanks:

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

(ii) Peripheral proteins are attached on to membrane by ..... interactions

(iii) ..... is an intracellular pro that binds calcium and activates enzymes.

(iv) GPI anchored proteins can be rele from the membrane by the enz .....

(f) Expand the following:

(i) MTOC

(ii) GERL

(iii) ABC.

1x

2. (a) Why is Golgi apparatus termed as the "Post Office of the Cell"? Discuss with suitable diagram. 6

(b) Explain with diagram the events that regulate M-phase of the cell cycle. 6

3. Write an account on the components and functions of mitochondrial respiratory chain. Add a note on its semiautonomous nature. 12

4. (a) Give an account on the packaging of chromosomal DNA in eukaryotic cell. 8

(b) Nucleolus is called the "Factory for RNA Biogenesis". Justify. 4

5. (a) What is cell signal cascade? Explain through GPCR pathway with Ca^{2+} as secondary messenger. 8

(b) Explain the assembly of microtubules and their role in cellular mobility. 4

6. (a) Discuss the various models of plasma membrane. 6

(b) Explain diagrammatically the process of receptor-mediated endocytosis. 6

7. Write short notes on any *three*:

(a) Synaptonemal Complex

(b) Peroxisomes

(c) Functions of Golgi complex

(d) Regulation of Cell cycle.

[This question paper contains 4 printed pages]

Your Roll No. : .....

Sl. No. of Q. Paper : **7620** **HC**

Unique Paper Code : 32235907

Name of the Course : **Generic Elective: Zoology**

Name of the Paper : Human Physiology

Semester : II/IV

Time : 3 Hours ***Maximum Marks : 75***

Instructions for Candidates :

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

(b) Answer any **five** questions in **all**. **Question No.1** is Compulsory.

1. (a) Define the following terms :

(i) Deglutition
(ii) Compliance
(iii) Synapse
(iv) Homeostasis 1×4=4

P.T.O.

(b) Differentiate between the following : 2×5=10

(i) External and Internal Respiration

(ii) Systole and Diastole

(iii) Isometric and Isotonic muscle contraction

(iv) PCT and DCT

(v) Leydig cells and Sertoli cells

(c) Expand the following :

(i) GnRH

(ii) RMP

(iii) JGA

(iv) CCK

(v) IRV 1×5=5

(d) State the location and functions of the following structures :

(a) Follicular cells

(b) T-tubule

(c) Brunner's glands

(d) Mitral valve 2×4=8

3. (a) Explain the process of digestion and absorption of fats in the gastrointestinal tract. 8

(b) Draw a well labelled diagram showing the histological details of Pancreas. 4

3. (a) Explain the mechanism of pulmonary ventilation and discuss the pressure changes accompanying it. 8

(b) Draw a well-labelled spirogram. 4

4. (a) Explain the various events taking place during the cardiac cycle. 6

(b) Define action potential. Elaborate the generation of action potential in a myelinated nerve fibre. 6

5. (a) Discuss the major changes in ovary during different phases of menstrual cycle. 6

(b) Tabulate the different zones of adrenal cortex, hormones secreted by them and their functions. 6

6. (a) Describe the three basic steps in the formation of urine. 8

(b) How does ADH regulate the urine output ? 4

7. Write short notes on any **three** of the following : 4×3=12

(i) Neuromuscular junction

(ii) Carbon dioxide transport

(iii) Hormonal regulation of digestion

(iv) Calcium homeostasis

(v) ECG