3 (Sem–2/CBCS) ZOO HC1

2025

ZOOLOGY

(Honours Core)

Paper : ZOO–HC–2016

(Non-Chordates–II)

Full Marks : 60

Time : Three hours

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

1. Choose the correct option : 1×7=7

   (a) Echinoderms are

   (i) Radially symmetrical in adult

   (ii) Radially symmetrical in larval stage

   (iii) Bilaterally symmetrical in adult

   (iv) All of the above

   (b) Which of the following cells maintains a current of water in sponges ?

   (i) procyte

   (ii) monocyte

(iii) chromocyte
(iv) choanocyte

(c) The legs of polychaetes are called as
(i) Pseudopodia
(ii) Parapodia
(iii) Cirri
(iv) Claws

(d) 'Miracidium' is one of the stages in the development of
(i) Fasciola hepatica
(ii) Taenia solium
(iii) Ascaris lumbricoides
(iv) Planaria

(e) The adult Echinoderm shows which of the following symmetry?
(i) Bilateral
(ii) Radial
(iii) Transverse
(iv) Biradial

(f) Torsion found in
(i) Gastropoda
(ii) Arthropoda
(iii) Cephalopoda
(iv) Decapoda

(g) A hormone that helps in insect metamorphosis (moult) is
(i) ADH
(ii) Estrogen
(iii) Androgen
(iv) Ecdyson

2. Answer in short : 2×4=8
(i) What do you mean by coelom?
(ii) Write about the 'Cysticircus or Bladder-worm' of Taenia Solium.
(iii) Distinguish between 'Polyp and Medusa'.
(iv) Write the advantage of torsion in Gastropoda

3. Write short notes on ***any three*** of the following : 5×3=15
(i) Compound eye in Insect
(ii) Aristotle's Lantern
(iii) Mechanism of locomotion in Asteroidea
(iv) Onichophora
(v) Caste system of termites

4. (a) Give an account of Metamorphosis found in Arthropoda. Describe the role of different hormones in the process of Metamorphosis. 5+5=10

Or

Classify the phyllum Mollusca upto class giving diagnostic characters and examples of each class.

(b) Give an account of Metamerism in Annilida with special reference to evolution of segmentation. 5+5=10

Or

"Onychophora is the connecting link between Annelida and Arthropoda." Justify.

(c) What do you mean by Polymorphism ? Give an account of polymorphism in Hydra. 1+9=10

Or

What do you mean by Adaptation ? Write about the parasitic adaptation in Helminths.

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3 (Sem–2/CBCS) ZOO HC 2

2025

ZOOLOGY

(Honours Core)

Paper : ZOO–HC–2026

(Cell Biology)

Full Marks : 60

Time : Three hours

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

1. Choose the correct option : 1×7=7

(i) Which of the following is not a characteristic of prokaryotes ?

(a) Cell membrane

(b) DNA

(c) Cell wall

(d) Endoplasmic reticulum

(ii) Which of the following transport induces conformational change in protein ?

(a) Active transport

(b) Simple diffusion

(c) Facilitated diffusion

(d) Ion-driven active transport

(iii) Phagocytosed food is digested with the help of enzymes which are present in

(a) Ribosomes

(b) Mitochondria

(c) Lysosome

(d) Golgi complex

(iv) All the statements are true, except

(a) Mitochondria are called as the power house of the cell

(b) Mitochondrial DNA is called mtDNA

(c) Mitochondira is the site of Calvin cycle

(d) Mitochondria is the site of Krebs cycle

(v) Viruses that attack bacteria are called

(a) Lysophage

(b) Virophage

(c) Bacteriophage

(d) None of the above

(vi) Which one of the following is the best stage to observe the shape, size and number of the chromosomes in a cell ?

(a) Prophase

(b) Interphase

(c) Metaphase

(d) Telophase

(vii) Barr body in mammals represents

(a) All the hetarochromatin in male and female cells

(b) All the hetarochromatin in female cells

(c) The *Y* chromosome in somatic cells of male

(d) One of the two *X* chromosomes in somatic cells of females

2. Answer the following questions : 2×4=8

(a) What is meant by signal transduction ?

(b) Write the characteristics of second messenger.

(c) Define oxydative phosphorylation.

(d) Distinguish between euchromatin and heterochromatin.

3. Answer ***any three*** of the following : 5×3=15

(a) Explain why the nucleus is called as the control center of the cell.

(b) Describe the different types of cell surface receptors.

(c) Justify the statement :

"Cytoskeletons are the bones and muscle of the cell."

(d) Write the significance of meiosis.

(e) Discuss the role of Golgi apparatus in exocytosis and endocytosis.

4. What are GPCRs ? Describe the role of G proteins in cell signalling. 4+6=10

Or

What is meant by reductional cell division ? Describe the various phases of prophase–I of meiosis with suitable labelled diagram. 2+6+2=10

5. What is meant by protofilaments ? Describe the structure and function of intermediate filaments with appraopriate diagrams. 2+5+3=10

Or

What is meant by beads on a string ? Describe the ultrastructure of the nucleosome. 3+7=10

6. What are the functions of plasma membranes ? Describe the properties of cell membrane essential for their function. 5+5=10

Or

Discuss the role of endoplasmic reticulum in protein synthesis and post-translational modifications. 5+5=10

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