

Total number of printed pages-4

3 (Sem-3/CBCS) ZOO HC 1

2023

ZOOLOGY

(Honours Core)

Paper : ZOO-HC-3016

*(Diversity of Chordata)*

Full Marks : 60

Time : Three hours

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

1. Answer the following questions :  $1 \times 7 = 7$

- (i) Which is not a chordate character ?
- (a) Dorsal hollow tubular nerve cord
  - (b) Longitudinal supporting rod-like notochord
  - (c) A series of pharyngeal gill slits
  - (d) Diploblastic

Contd.

- (ii) Balanoglossus is commonly known as
- (a) Snake worm
  - (b) Acorn worm
  - (c) Corn worm
  - (d) Hemichordata
- (iii) The Dipleurula concept was first proposed by
- (a) Darwin
  - (b) Bather
  - (c) Garstang
  - (d) None of the above
- (iv) The larva of Lamprey is
- (a) Tornaria
  - (b) Trochophore
  - (c) Ammocoete
  - (d) Ascidia tadpole larva
- (v) The Ostracoderms are grouped into
- (a) Pisces
  - (b) Agnatha
  - (c) Gnathostomata
  - (d) Tetrapoda

- (vi) Which of the following is the connecting link between osteichthyes and Amphibian?
- (a) Peripatus
  - (b) Neopilina
  - (c) Protopterus
  - (d) Ornithorhynchus
- (vii) Snakes are sensitive to
- (a) noises made by birds
  - (b) earth borne vibrations
  - (c) thunder
  - (d) air borne vibrations
2. Answer the following : 2×4=8
- (i) Write short notes on parental care in Amphibia.
  - (ii) Describe the mechanism of osmoregulation in marine fish.
  - (iii) What is active flight or true flight?
  - (iv) State distinctive characters of class Reptilia.
3. Answer **any three** of the following questions : 5×3=15
- (i) Distinguish between Lamprey and Hagfish.
  - (ii) Write a brief note on Archaeopteryx with suitable diagram.
  - (iii) Write about the anatomical peculiarities of Sphenodon.



- (iv) Distinguish between Megachiroptera and Microchiroptera.
- (v) Write briefly on Wegener's continental drift theory.
4. Answer the following questions :  $10 \times 3 = 30$
- (a) Describe the retrogressive metamorphosis in Urochordata with suitable diagrams.
- Or**
- (b) What do you mean by parental care? Discuss about the various mechanism of parental care in Fishes.  $2+8=10$
5. (a) Write about the general characteristics of class Amphibia. Give an outline classification of Amphibia.  $5+5=10$
- Or**
- (b) Birds are 'glorified reptiles'. Justify the statement.
6. (a) Name *two* venomous snake of India. Describe the biting mechanism of snake with suitable diagram.  $2+8=10$
- Or**
- (b) What do you mean by Zoogeography? Give an account of different zoogeographical region with its faunal diversity and distribution.  $2+8=10$
-

Total number of printed pages-4

**3 (Sem-3/CBCS) ZOO HC 2**

**2023**

**ZOOLOGY**

(Honours Core)

Paper : ZOO-HC-3026

**(Animal Physiology : Controlling and Coordinating Systems)**

Full Marks : 60

Time : Three hours

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

1. Answer the following/Choose the correct answer : 1×7=7

(a) Transitional epithelium is found on

(i) Stomach

(ii) Lungs

(iii) Liver

(iv) Urinary bladder

Contd.



(b) The synaptic vesicles at neuromuscular junction discharge

- (i) Adrenaline
- (ii) Epinephrine
- (iii) Acetylcholine
- (iv) None of the above

(c) A small band of dense, white and fibrous elastic tissue is grouped as

- (i) Ligament
- (ii) Muscle junction
- (iii) Muscle filament
- (iv) Muscle cartilage

(d) The longest bone in the body is

- (i) Femur
- (ii) Radius
- (iii) Hip Bone
- (iv) Ilium

(e) Which of the following tissue envelopes the bone ?

- (i) Periosteum
- (ii) Pericardium
- (iii) Myocardium
- (iv) None of the above

(f) Spongy bones do not have a haversian system. (True **or** False)

(g) Ovulation generally takes place at the \_\_\_\_\_ of a menstrual cycle.

- (i) Day 12
- (ii) Day 14
- (iii) Day 16
- (iv) Day 28

2. Answer the following questions :  $2 \times 4 = 8$

(a) Mention the posterior pituitary hormones with their functions.

(b) What is tetanus ?

(c) Describe the structure of neuromuscular junction.

(d) What is bone arification ?

3. Answer the following questions : (**any three**)  
 $5 \times 3 = 15$

(a) What is bone ? Describe different types of bones with example.

(b) Describe briefly the characteristics of muscle twitch.

(c) Describe the structure of thyroid gland with labelled diagram.

(d) What is Reflex action ? Describe with example.

(e) Classify epithelial tissue with example.

4. (a) Describe the structure of connective tissue with neat and labelled diagram.

7+3=10

**Or**

(b) What is nerve impulse ? Describe the process of nerve impulse conduction through unmyelinated nerve fibre.

2+8=10

5. (a) What is puberty ? Describe the role of hormones involved in puberty.

2+8=10

**Or**

(b) Describe the process of signal transduction for non-steroidal hormones.

10

6. (a) Describe the physiology of vision with neat and labelled diagram.

7+3=10

**Or**

(b) Describe the molecular and chemical basis of muscle contraction.

5+5=10



Total number of printed pages-4

3 (Sem-3/CBCS) ZOO HC 3

2023

**ZOOLOGY**

(Honours Core)

Paper : ZOO-HC-3036

**(Fundamentals of Biochemistry)**

Full Marks : 60

Time : Three hours

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

1. Answer the following questions :  $1 \times 7 = 7$

(a) Which bond stabilize the secondary structure of protein ?

- (i) Covalent bond
- (ii) Hydrogen bond
- (iii) Hydrophobic bond
- (iv) van der Waals forces

(b) Which of the following amino acid carries a net positive charge at the physiological pH ?

- (i) Valine
- (ii) Isoleucine
- (iii) Lysine
- (iv) None of the above

Contd.



- (c) The protein part of the enzyme is known as
- (i) Apoenzyme
  - (ii) Holoenzyme
  - (iii) Isoenzyme
  - (iv) Cofactor
- (d) Which of the following statement is true about  $t_m$  ?
- (i) The higher the content of  $G \equiv Cbp$ , the lower the  $t_m$ .
  - (ii) The higher the content of  $G \equiv Cbp$ , the higher the  $t_m$ .
  - (iii) The higher the content of  $A = Tbp$ , the higher the  $t_m$ .
  - (iv) It is termed as renaturation temperature.
- (e) The disaccharide lactose is composed of
- (i) glucose and sucrose
  - (ii) glucose and ribose
  - (iii) glucose and fructose
  - (iv) glucose and galactose
- (f) Which of the following is the example of derived lipids ?
- (i) Terpenes
  - (ii) Steroids

- (iii) Carotenoids
  - (iv) All of the above
- (g) Antibodies recognize antigens
- (i) by neutralizing pathogens within host cells
  - (ii) by covalent binding to specific epitopes
  - (iii) by their hypervariable regions
  - (iv) All of the above

2. Answer the following questions :  $2 \times 4 = 8$
- (a) Write the difference between nucleosides and nucleotides.
  - (b) Write the significance of  $k_m$
  - (c) What is protein denaturation ?
  - (d) What is reducing sugar ? Give one example.
3. Answer the following questions : **(any three)**  
 $5 \times 3 = 15$
- (a) What are glycoconjugates ? Write its biological significance.  $2+3=5$
  - (b) Draw and briefly state the structure of immunoglobulin molecule.  $2+3=5$
  - (c) What is cot curves ? State its significance.  $1+4=5$



(d) What is enzyme inhibition ? Write briefly about different types of enzyme inhibition.  $1+4=5$

(e) Write the difference between simple protein and conjugate protein.

4. (a) Derive Michaelis-Menten equation for single substrate enzyme catalyzed reaction.  $10$

Or

(b) Discuss the different classes of carbohydrate with example and mention its biological significance.

5. (a) What are terpenes ? Discuss the biological importance of different types of terpenes with suitable example.  $2+8=10$

Or

(b) Describe the classification of amino acid. Write the difference between essential and non-essential amino acid.  $7+3=10$

6. (a) What are the bonds involved in stabilizing the protein structure ? Discuss the various level of organization of protein.  $3+7=10$

Or

(b) Describe the various classes of immunoglobulin and state its function.  $10$