

[This question paper contains 4 printed pages.]

Your Roll No.

Sr. No. of Question Paper : 1385 C

Unique Paper Code : 32231301

Name of the Paper : Diversity of Chordates

Name of the Course : B.Sc. (Hons.) Zoology,  
LOCF

Semester : III

Duration : 3 Hours

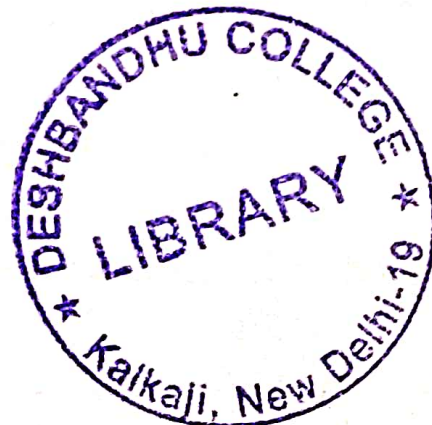
Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt FIVE questions in all.
3. Question No.1 is compulsory.
4. Illustrate your answers with diagram wherever necessary.

1. (a) Give the scientific name and classify each of the following upto order :

- (i) Sea squirt
- (ii) Midwife toad
- (iii) Glass snakes



P.T.O.

(iv) Sea horse (4×1½=6)

(b) Differentiate between :

(i) Physostomous and Physoclistous swim bladder

(ii) Lacertilia and Ophidia

(iii) Ratitae and Carinatae

(iv) Tornaria and Ascidian tadpole larva  
(4×2=8)

(c) Give the location and function of the following :

(i) Gas gland

(ii) Uropygial gland

(iii) Patagium

(iv) Loreal pit (4×1½=6)

(d) Mark the following statements as TRUE or FALSE :-

(i) Balanoglossus is a ciliary feeder.

(ii) Swim bladder is present in Elasmobranch.

(iii) Excretion in amphibians is ureotelic.

(iv) All the reptiles have diapsid skull.

(v) Presence of pygostyle helps the birds for stability in air.

(vi) Metatherians are oviparous.  $(6 \times 1/2 = 3)$

(d) Explain :

(i) Paedogenesis

(ii) Cursorial adaptation

(iii) Lateral Line

(iv) Realm  $(4 \times 1 = 4)$

2. Give a detailed account of migratory behavior of birds.  $(12)$

3. (a) What are the reasons for considering *Sphenodon* as a connecting link between amphibians and reptiles?  $(8)$

(b) Describe the catadromous migration in fishes with suitable example.  $(4)$

4. Explain the origin and evolution of Tetrapods. (12)
5. Elaborate the mechanism of maintaining the internal balance of salt and water in various groups of fishes that help them adapt to their habitats. (12)
6. (a) Describe the salient features and fauna of Palearctic and Oriental regions. (8)  
(b) Explain the biting mechanism of poisonous snakes. (4)
7. Write short note on **ANY THREE** of the following :
  - (i) Continental drift theory
  - (ii) Reptilian affinity of Prototherians
  - (iii) Echinoderm theory of origin of chordates
  - (iv) Retrogressive metamorphosis (3×4=12)

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Your Roll No.....

Sr. No. of Question Paper : 1414

C

Unique Paper Code : 32231302

Name of the Paper : Physiology: Controlling and  
Coordinating Systems

Name of the Course : B.Sc. (Hons.) Zoology Exam-  
2022, LOCF

Semester : III

Duration : 3 Hours

Maximum Marks : 75

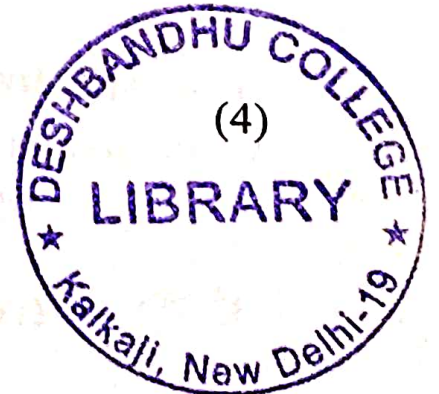
**Instructions for Candidates**

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.
3. Draw diagrams wherever required.

1. (a) Define the following terms :

(i) Synapse

(ii) Osteoporosis



P.T.O.

(iii) Tropic hormone

(iv) Epiphyseal plates

(b) Differentiate between the following : (10)

(i) Diabetes mellitus and Diabetes insipidus

(ii) Isotropic and anisotropic band

(iii) Spermatogenesis and spermiogenesis

(iv) Compact and spongy bone

(v) Somatotropin and somatostatin

(c) Expand the following (any FOUR) : (4)

(i) ICSH

(ii) PIF

(iii) hGH

(iv) IPSP

(v) ACTH

(vi) NOS

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

(5)

- (i) Chromaffin cells
- (ii) Corpus luteum
- (iii) T- tubules
- (iv) Leydig cells
- (v) Volkmann's canal

(e) Fill in the blanks :

(4)

- (i) Oxygen-binding protein found only in the muscle fibres is \_\_\_\_\_
- (ii) Ligand-gated ion channels are present in \_\_\_\_\_
- (iii) Simple columnar epithelium is specialised for \_\_\_\_\_ and \_\_\_\_\_

2. Compare the conduction of an action potential in a non-myelinated axon with that in a myelinated one. Which type of conduction is more energy-efficient and why?

(9+3)

3. (a) Describe the mode of action of lipid soluble and water-soluble hormones. Give suitable examples for each. (8)
- (b) List the hormones secreted from the posterior pituitary and describe their functions. (4)
4. (a) Discuss the molecular basis of skeletal muscle contraction. (10)
- (b) What are ionotropic receptors? (2)
5. (a) How are sound waves converted into action potentials in the auditory nerve? (9)
- (b) Draw a well labelled diagram of a neuron. (3)
6. (a) Discuss the role of different hormones involved in the male reproductive physiology. (6)
- (b) Describe the functions of Sertoli cells. (6)
7. Write short notes on **any three** of the following :
- (a) Renin-Angiotensin-Aldosterone (RAA) pathway
- (b) Cell junctions
- (c) Types of cartilage
- (d) Oogenesis (3×4=12)



[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1432

C

Unique Paper Code : 32231303

Name of the Paper : Fundamental of Biochemistry

Name of the Course : B.Sc. (Hons.) Zoology  
(LOCF)

Semester : III

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 **FOUR** questions in all.
3. Question No. 1 is compulsory.

1. (a) Define the following terms :

- (i) Eicosanoids
- (ii) Epimer
- (iii) Amphipathy



P.T.O.

- (iv) Isozymes
- (v) Pitch of the DNA
- (vi) Plasmalogens
- (vii) pKa value

(b) Differentiate between the following pairs of terms :  
(6×2 =12)

- (i) Cysteine and Cystine
- (ii) Hemiacetal and Hemiketal
- (iii) Nucleoside and Nucleotide
- (iv) Cofactor and Coenzyme
- (v) Peptide and Glycosidic bond
- (vi) Phi and Psi angle

(c) Give the names and structures of the following:  
(4×2=8)

- (i) A disaccharide composed of glucose and fructose
- (ii) An amino acid with aromatic R group

- (iii) A purine nitrogenous base
- (iv) A saturated C-16 fatty acid
2. (a) Describe various forms of DNA with special reference to Watson and Crick Model? (8)
- (b) Explain the  $C_0t$ -curves analysis with the help of graph. (4)
3. (a) Give an account on the structural and functional features of phospholipids. (7)
- (b) Describe the physiological importance of saturated and unsaturated fatty acids. (5)
4. (a) Elucidate the Michaelis-Menten equation for a one enzyme one substrate reaction. (7)
- (b) What factors are responsible for affecting the enzyme activity. Discuss. (5)
5. (a) Explain various levels of organization of protein structure and their significance. (9)
- (b) What are essential and non-essential amino acids? Cite the examples. (3)

6. (a) Give a detailed account of 'structure and function of any two homo and hetero polysaccharides. (8)
- (b) Describe the structural properties of Monosaccharides. (4)
7. Write short notes on any **three** of the following : (4×3=12)
- (i) Lineweaver-Burk Plot
  - (ii) Immunoglobulins
  - (iii) Cholesterol
  - (iv) induced fit theory of Enzyme action
  - (v) t-RNA