

Total Pages - 3

UG/3rd Sem/ZOO(H)/T/19

2019

B.Sc.

3rd Semester Examination

ZOOLOGY (Honours)

Paper - C 5-T

(CHORDATES)

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer any *five* questions : $5 \times 2 = 10$

(a) Write scientific name of any two protochordates.

(b) Define metamorphosis.

(c) State the significance of ecolocation.

(d) Name the major flight muscles in birds.

(e) Mention two characteristic features of Prototheria.

[Turn Over]

(2)

(f) Name the fishes having accessory respiratory organs.

(g) What is continental drift theory ?

(h) Explain why Cyclostomes belong to Agnatha.

Group - B

2. Answer any *four* questions : 4×5=20

(a) 'All vertebrates are chordates but all chordates are not vertebrates' — Justify the statement.

(b) Give an account of retrogressive metamorphosis in *Ascidia*.

(c) Describe the structure of the poison apparatus of snake.

(d) Mention the salient features of Cetaceans with examples.

(e) Describe the structure of a swim-bladder of fish and state its significance. 2½+2½

(f) Enumerate the Echinoderm theory of origin of chordates.

(g) Write a note on fish migration.

(3)

- ✓(a) Describe the process of feeding in *Branchiostoma*.

Group - C

3. Answer any *one* question : 1×10=10

- ✓(a) Classify Amphibia up to living orders with examples.

(b) (i) State the advanced features of vertebrates over Protochordata.

(ii) Write an explanatory note on the parental care in Amphibia. 5+5

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B.Sc.

3rd Semester Examination

ZOOLOGY (Honours)

Paper - C 6-T

(ANIMAL PHYSIOLOGY : CONTROLLING AND
COORDINATING SYSTEM)

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer *five* questions from the following : $5 \times 2 = 10$

(a) What is meant by neuromodulation ?

(b) Why is cartilage is slow to heal ?

(c) Where from chorionic gonadotropin is secreted?
Mention its biological importance. 1+1

(d) Write down the function of Cowper's gland.

[Turn Over]

(2)

- ✓(e) What is menarche ?
- ✓(f) What do you mean by reflex action ?
- (g) What is Frohlich's syndrome ?
- (h) What is Grave's disease ?

Group - B

2. Answer *four* questions : 4×5=20

- (a) In what ways do intramembranous and endocardial ossification differ ?
- (b) (i) State the difference between spermatogenesis and spermiogenesis. 3
- (ii) Write down the role of hormone in sperm production. 2
- (c) Write down the function of Osteoblast and Osteoclast cells. 4
- State the origin of Osteoblast cell. 1
- ✓(d) Draw a sarcomere and label its components. Briefly state the function of each component.
- ✓(e) Explain how intracellular free Ca^{2+} is regulated in striated muscle fibers and how does it control their contraction ?

(3)

- ✓ (f) What are the four important hormones and their respective functions in the female menstrual cycle?

Group - C

3. Answer any *one* question : 1×10=10

- ✓ (a) (i) Explain the role of different channel proteins in maintainance of resting membrane potential.
- (ii) Briefly explain synaptic transmission in neural signalling.
- (b) (i) Illustrate diagrammatically the role of insulin hormone signalling in response to high blood sugar condition.
- (ii) Compare the signal transduction pathway between protein, thyroid and steroidal hormone.
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Total Pages - 4

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B.Sc.

3rd Semester Examination

ZOOLOGY (Honours)

Paper - C 7-T

(FUNDAMENTALS OF BIOCHEMISTRY)

Full Marks : 40

Time : 3 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer any *five* questions : 2×5=10

- 2 ✓ (a) Differentiate between epimer and anomer. 2
- (b) What do you mean by EC number of enzyme. 2
- 2 ✓ (c) What do you mean by iso electric point ? 2
- 2 ✓ (d) Differentiate between cofactor and prosthetic group. 2

[Turn Over]

(2)

(e) What is HMP shunt ? 2

2 ✓ (f) 'At higher temperature DNA can absorb more UV rays' — explain. 2

(g) 'Cytosine can form 3 hydrogen bonds with Guanosine but adenine can form only 2 with thymine' — explain. 2

2 ✓ (h) Differentiate between saturated and unsaturated fatty acid with example. 2

Group - B

2. Answer any *four* questions : 5×4=20

✓ (a) Define Gluconeogenesis. Give a schematic diagram of the reactions involved in Gluconeogenesis 1+4

✓ (b) (i) Compare A-, B- and Z- DNA.

(ii) Name some unusual bases present in t-RNA. 3+2

(c) Write the physiological role of non essential amino acids. Briefly describe the process of Oxidative deamination. 2+3

(3)

(d) Draw and describe the components of Electron Transport Chain. $2\frac{1}{2}+2\frac{1}{2}$

(e) Write short notes on —

(i) ATP synthase

(ii) Glycogen $3+2$

(f) A DNA segment contains 100 nucleotide base pairs.

(i) What is the length of DNA segment ?

(ii) Calculate the number of spirals in the molecule.

(iii) If there is a total of 70 Adenine base. Calculate the number of Guanine present in the segment. $2+1+2$

3. Answer any *one* question : $10 \times 1 = 10$

(a) (i) Why is peptide bonds considered as partial double bonds ?

(ii) Draw and describe the secondary structures of protein.

[Turn Over]

(4)

(iii) 'Haemoglobin has quaternary structure but myoglobin don't'. — explain. 2+6+2

✓(b) Explain Michaelis - Menten equation of enzyme kinetics with proper derivation. Add a note on non competitive enzyme inhibition with suitable example. 7+3
