

[This question paper contains 4 printed pages.]

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 : (4)

(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) ICSN

(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)

P.T.O.

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)

(1500)