

This question paper contains 4 printed pages]

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S. No. of Question Paper : 7514

Unique Paper Code : 32231302

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Name of the Paper : Physiology : Controlling and Coordinating
System

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

Semester : III

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt five questions in all.

Question No. 1 is compulsory.

1. (A) Define : 4

(i) Temporal Summation

(ii) Tropic hormone

(iii) Oxygen debt

(iv) Theca interna.

(B) Distinguish between : 5×2=10

(i) EPSP and IPSP

P.T.O.

(ii) Fused and Unfused Tetanus

(iii) Leydig cells and Sertoli cells

(iv) Osteoclasts and Osteoblasts

(v) Stratified and Pseudo-stratified epithelium.

(C) Expand the following :

3

(i) 5-HT

(ii) CK

(iii) PVN

(iv) NE

(v) LTH

(vi) cAMP.

(D) Give the location and function for each of the following :

4

(a) Nebulin

(b) Parafollicular Cells

(c) Organ of Corti

(d) Ependymal Cells.

(E) Give reasons/Physiological significance of the following

(any two) :

2

(i) Blood Testis Barrier.

(ii) Amplitude of an action potential once generated is always the same.

(iii) Slumping of the head forward on the chest

(F) Fill in the blanks :

4

(i) A toxin popularly used in cosmetic surgery is

(ii) Deep grooves in the motor end plate that are rich in receptors are called

(iii) tissue is avascular.

(iv) Angiotensinogen, a plasma protein produced by the liver is converted into Angiotensin I by

2. (a) Mention different types of ion channels and describe their role in generation of electrical signals. 8

(b) Explain the transmission of nerve impulse across a Chemical Synapse. 4

3. (a) Describe the role of troponin, tropomyosin and calcium in muscle contraction. 9
- (b) Diagrammatically represent the ultrastructure of sarcomere. 3
4. Compare the major changes occurring in the ovary, uterus and their hormonal regulation during the female reproductive cycle. 12
5. (a) Explain the various mechanisms regulating hormone secretion. 6
- (b) How does the adrenal cortex and medulla compare with regard to its structure and function ? 6
6. (a) Describe the process of bone ossification. 9
- (b) Enumerate the various types of cells present in connective tissue. 3
7. Write short notes on the following (any *three*) : $3 \times 4 = 12$
- (i) Molecular events in Contraction cycle
- (ii) Bleaching and regeneration of photo-pigments
- (iii) Mechanism of action of water soluble hormones
- (iv) Spermatogenesis.