(b) Name the structural proteins present in the skeletal muscle and their functions? (5)

5. (a) Discuss the role of different hormones secreted by the pituitary and the ovaries during the follicular and the luteal phases of the menstrual cycle. (10)

(b) What is the significance of the positive feedback effect of estrogens in the menstrual cycle? (2)

6. (a) Describe the signal transduction pathway in the physiology of vision. (10)

(b) What is light and dark adaptation? (2)

7. Write short notes on **any three** of the following : (3×4=12)

(a) Synthesis of thyroid hormones

(b) Histological differences between spongy and compact bone

(c) Male accessory glands

(d) Glial cells

[This question paper contains 4 printed pages.]

02.01.2024(M)

Your Roll No.....

Sr. No. of Question Paper : 4409 **G**

Unique Paper Code : 32231302

Name of the Paper : Physiology: Controlling and Coordinating Systems

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. Question no. **1** is compulsory.
3. Draw diagrams where ever required.

1. (a) Define the following terms : (5)

(i) Pseudostratified epithelium

(ii) Sarcomere

(iii) Graafian follicle

(iv) Gap junctions

(v) Integrating neurons

(b) Differentiate between the following : (10)

(i) Adenohypophysis and Neurohypophysis

(ii) Isotonic and isometric muscle contraction

(iii) Leydig cells and Sertoli cells

(iv) Graded potential and Action potential

(v) Autocrine and paracrine signalling

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

(i) EPSP

(ii) IGF

(iii) ENS

(iv) GABA

(v) ACh

(vi) MAO

(d) Give location and functions of the following : (4)

(i) Islet of Langerhans

(ii) Schwann cells

(iii) Sarcoplasmic reticulum

(iv) Parafollicular cells

(e) Fill in the blanks : (4)

(i) _____ gives rise to the acrosome during spermiogenesis.

(ii) Hypersecretion of hGH during childhood results in _____

(iii) Keratinized stratified squamous epithelium is found in and nonkeratinized stratified squamous epithelium is found in _____

2. (a) With the help of suitable examples, describe how negative feedback loops help in controlling hormone secretion. (6)

(b) How are blood calcium levels regulated in the body? (6)

3. (a) How and where in a neuron is an action potential generated? (10)

(b) If action potentials follow the all or none principle, how are different intensities of sensations like pain or touch perceived? (2)

4. (a) How does excitation of the sarcolemma result in contraction of a skeletal muscle? (7)