QP Code: 24/PT/14/VIIB

POST-GRADUATE DEGREE PROGRAMME

Term End Examination — December, 2024

ZOOLOGY

Paper-7B : ENDOCRINOLOGY, CELL & TISSUE STRUCTURE AND FUNCTION

Time : 2 hours] [Full Marks : 50

Weightage of Marks : 80%

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

1. Answer *two* questions : $9 \times 2 = 18$

   a) Describe the different steps involved in the biosynthesis of thyroxine. What is iodine trapping ? 6 + 3

   b) What are peripheral and integral membrane proteins ? Write a note on the functions of the plasma membrane. 4 + 5

   c) Discuss the different types of cell surface receptors associated with signal transduction. Comment on secondary messengers. 6 + 3

   d) What are glucocorticoids ? Why are they so named ? Narrate metabolic effects of glucocorticoids. 2 + 1 + 6

2. Answer *three* questions : $6 \times 3 = 18$

   a) What do you mean by endocrine feedback system ? Explain positive feedback and negative feedback with proper examples. 2 + 4

   b) Briefly explain the MAP kinase pathway with a suitable diagram.

   c) Explain the activation of apoptosis from inside the cell. Name the intracellular regulatory proteins involved in this process. 4 + 2

   d) Discuss the biological action of growth hormone.

   e) How does the hypothalamic-hypophysial-ovarian axis function ?

   f) Elaborate the steps involved in the expression of a protein-encoding gene.

3. Answer *two* questions : $4 \times 2 = 8$

   a) How does apoptosis differ from necrosis ? Mention the significance of caspase-3. 2 + 2

   b) State the physiological effects of cholecystokinin.

   c) Narrate the pathway of estrogen biosynthesis during luteal phase.

   d) Discuss the functions of aldosterone.

4. Answer *two* questions : $3 \times 2 = 6$

   a) What is the significance of signal sequences in peptide prohormone ?

   b) What are catecholamines ? Mention the source and function of catecholamines.

   c) Write the functions of FSH and LH in females.

   d) Write a short note on Cushing's syndrome.