

QP Code: 22/PT/14/VIIB

POST-GRADUATE COURSE

Term End Examination — June, 2022/December, 2022

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 precise and correct answer. Marks will be deducted for spelling mistakes, untidiness and illegible handwriting. The figures in the margin indicate full marks.

1. Answer *two* questions : 9 × 2 = 18
 - a) What is endocrine feedback system ? Discuss its importance. Write a short note on the mechanism of action of steroid hormones. 4 + 5
 - b) How does renin-angiotensin-aldosterone regulatory system function ? Explain the immunological effects of glucocorticoids. 5 + 4
 - c) Differentiate between apoptosis and necrosis. Explain the intrinsic apoptosis pathway. Mention the role of Fas ligand in extrinsic apoptosis pathway. 2 + 5 + 2
 - d) Give an account of the structural differences of unstimulated and stimulated G proteins. Elucidate the MAP kinase pathway mentioning the molecular events involved in it. 3 + 6
2. Answer *three* questions : 6 × 3 = 18
 - a) What is hyperaldosteronism ? Explain the biosynthetic pathways of catecholamines. 1 + 5
 - b) Mention the major activities of the following GI hormones and major stimuli for their release from respective sources. 2 × 3
 - (i) Secretin, (ii) Gastric inhibitory polypeptide, (iii) Gastrin.
 - c) Describe the metabolic effect of STH on protein, fat and carbohydrate metabolism.

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[Turn over

- d) What is Rathke's pouch ? Mention the importance of lactotrophic cell. Write about the interstitial cell stimulating hormone (ICTH).
1 + 2 + 3
- e) What is the role of 'sodium iodide symporter' located at the basolateral membrane of thyrocytes ? Discuss the biological action of thyroid stimulating hormone.
2 + 4
- f) Write a short note on thyroglobulin (Tg). Mention the role of cAMP in metabolic regulation of peptide / amine hormones.
3 + 3
3. Answer *two* questions : $4 \times 2 = 8$
- a) Differentiate between autocrine and paracrine mode of signalling. Why the mechanism of action differs between steroid and protein / peptide hormones ?
2 + 2
- b) Discuss the role of proteins belonging to bcl2 and IAP families in apoptosis.
- c) Name any three enzymes involved in the biosynthesis of sex steroids hormones mentioning their functions. What is Prader-Willi syndrome ?
3 + 1
- d) How does the hypothalamic-pituitary-leydig cell axis function ?
4. Answer *two* questions : $3 \times 2 = 6$
- a) Where does androgen binding protein (ABP) synthesized ? Mention the role of ABP.
1 + 2
- b) Mention and explain the role of any two significant regulators of aldosterone secretion.
 $1\frac{1}{2} + 1\frac{1}{2}$
- c) Explain the differences in chemical structure of progesterone, pregnenolone and pregnanediol.
- d) Explain how the shape and amphipathic nature of the lipid molecules present in bio-membrane to form bilayers spontaneously in aqueous environments.
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