B.Sc. 6th Semester (Honours) Examination, 2024 (CBCS)

Subject : Zoology

Course : DSE-4

(Endocrinology)

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group – A

1. Answer *any five* questions of the following: 2×5=10

   (a) Distinguish between hormones and pheromones.

   (b) What are Herring bodies?

   (c) Can you live without thyroid gland? Justify your comment.

   (d) Mention the function of somatostatin.

   (e) What do you mean by "Follicular atresia"?

   (f) State the function of GnRH.

   (g) What is the function of Ghrelin and from where it is secreted?

   (h) What is preprohormone?

Group – B

2. Answer *any two* of the following questions: 5×2=10

   (a) Delineate the structure and function of parathyroid glands. 3+2

   (b) Write the basic principle of RIA. What are the limitations of RIA? Why is ELISA used instead of RIA? 2+2+1

   (c) Why is CAMP mediated signal amplification not required in steroid hormone signalling? Describe steroid hormone signalling pathway. 2+3

   (d) Write short notes: 2½×2

      (i) Hypothalamo hypophyseal gonadal axis

      (ii) Sertoli cell barrier

Group – C

3. Answer *any two* of the following questions: 10×2=20

(a) What is sexual cycle? Differentiate between menstrual cycle and oestrous cycle. Describe the phases of oestrous cycle in rat with diagram. Comment on amenorrhea. 1+2+5+2

(b) Describe the histological structure of adrenal gland with labelled diagram. Mention the function of renin-angiotensin system. Describe the biosynthetic pathway of adrenomedullary hormones. 4+2½+3½

(c) Describe the negative feedback action of Inhibin with a schematic diagram. What is gynecomastia? Mention the role of oxytocin. 6+2+2

(d) Write causes and symptoms of the following diseases: 2½×4

(i) Simmonds' disease

(ii) Addision's disease

(iii) Graves' disease

(iv) Type-II diabetes

B.Sc. 6th Semester (Honours) Examination, 2024 (CBCS)

Subject : Zoology

Course : DSE-4 (OR)

(Reproductive Biology)

Time: 2 Hours **Full Marks: 40**

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Candidates are required to give their answers in their own words as far as practicable.

Group – A

1. Answer *any five* questions of the following: 2×5=10

(a) What are the primary functions of luteinizing hormone (LH) in the female reproductive systems?

(b) Mention the factors that can influence the kinetics of spermatogenesis.

(c) What role do Leydig cells play in androgen synthesis?

(d) Mention the role of hCG during early pregnancy.

(e) What is the function of prolactin during lactation?

(f) What are the primary causes of male infertility?

(g) What are the ethical concerns associated with sex selection in ART?

(h) What are the main structural components of the human ovary?

Group – B

2. Answer *any two* of the following questions: 5×2=10

(a) Describe the pathways through which steroid hormones and glycoprotein hormones exert their effects.

(b) Describe the embryological origins of the gonads and how they differentiate into testes or ovaries.

(c) What do you mean by endocrine disruptors? Evaluate the influence of endocrine disruptors on reproductive health. 2+3

(d) Explain the arrangement and significance of the blood-testis barrier.

Group – C

3. Answer *any two* of the following questions: 10×2=20

(a) How does the hypothalamic-pituitary-gonadal axis regulate spermatogenesis? What are the major steps involved in the conversion of testosterone to its active and inactive forms? 6+4

(b) Analyze the hormonal changes and their effects throughout the stages of gestation. Discuss the mechanism of parturition and its hormonal regulation. 5+5

(c) Describe common causes of infertility in males, such as low sperm count, motility issues and genetic factors. Explain the diagnostic methods used to assess infertility in both sexes. 6+4

(d) Explain the mechanisms of action for hormonal contraceptives and their physiological effects. Write a note on the structural organization of the seminiferous tubules. 6+4