B.Sc. 6th Semester (Honours) Examination, 2022 (CBCS)

Subject: Zoology

Paper: DSE-4

(Endocrinology)

Full Marks: 40 **Time: 2 Hrs.**

The figures in the right hand margin indicate full marks.

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

Group - A

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

a) Name the thyroid hormone binding proteins.

b) What is 'Cushing Syndrome'?

c) Give a labelled diagram of Graafian follicle.

d) Write the name of nuclei around middle region of hypothalamus.

e) What is hypothalamo-hypophyseal portal system?

f) What is Hashimoto's disease?

g) Differentiate between neurotransmitter and neurohormones.

h) What are magnocellular neurons? Mention their importance.

Group - B

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

a) Elaborate the interplay of hormones in menstrual cycle with suitable illustration. 5

b) How the information about the day and night rhythm is transmitted to the Pineal gland? 5

c) Briefly discuss the histological structure of Pituitary Gland. Name two hormones that are secreted from posterior pituitary. 3+2

d) Briefly describe how sodium homeostasis is maintained in the body through renin-angiotensin pathway. 5

Group - C

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

a) Distinguish between direct ELISA and sandwich ELISA with suitable diagram. Name two enzymatic markers used in ELISA. What are the advantages and disadvantages of using ELISA? 5+2+3

b) Explain the mechanism of action of steroid hormones. Add a note on g-protein coupled receptor. 5+5

c) Write basic principle of the RIA. State its application in biological science. Briefly describe the procedure of RIA. 2+2+6

d) Write short notes on: 5+5

a) Oxytocin

b) Hypothalamic nuclei

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(Reproductive Biology)

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Group - A

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

a) Mention the merits and demerits of IVF.

b) What is cumulus oophorus?

c) Why hCG is utilized in diagnosis of early pregnancy?

d) What are *Azoospermia* and *Oligomenorrhoea*?

e) Mention the significance of ' *Pap Smear test'* in reproductive health.

f) What is the general composition of birth control pill?

g) Name the hormones secreted by zona fasciculata and zona reticularis.

h) What is steroidogenesis?

Group - B

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

a) Graphically represent the concentration of the following hormones during pregnancy in maternal plasma: 1×5

(a) hCG (b) Progesterone (c) Estrogen (d) CRH (e) hPL

b) Give a schematic representation of how male reproductive function is regulated by the interaction of hormones from the hypothalamus, anterior lobe of the pituitary gland, and the testes. 2+1+2

c) What is the precursor for all steroid hormones in both males and females? State events in the uterine cycle occurring in consequence of decrease in estrogens and progesterone levels. 1+4

d) Explain stimulation of lactation via suckling through a clear flowchart. 5

Group - C

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

a) Describe the process of fertilization with reference to: (i) acrosome reaction, and (ii) block to polyspermy. 5+5

b) Describe the causes, diagnosis of infertility in male and female. Add a note on the functions of accessory glands of male reproductions. 3+3+4

c) Write notes on: (i) Frozen Embryos (ii) Foeto-maternal relationship 5+5

d) What is parturition? Give a brief description of its hormonal regulation. 2+8