

(6 pages)

S.No. 3331

P 22 ZOCC 1 B

(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Zoology – Core Choice Course

ENDOCRINOLOGY

Time : Three hours

Maximum : 75 marks

SECTION A — (20 marks)

Answer ALL questions.

I. Multiple Choice : (5 × 1 = 5)

1. Y-organ is inhibited by the following leading to suppression of ecdysteroids

- (a) MIH (b) GIH
- (c) MOIH (d) CHH

2. Human chorionic gonadotropin is secreted by

- (a) Chromaffin cells
- (b) Syncytiotrophoblast cells
- (c) Keratinocytes
- (d) Osteoblasts

3. Angiotensinogen the precursor for angiotensin, is synthesized by

- (a) Brain
- (b) Kidney
- (c) Liver
- (d) Pancreas

4. Acromegaly can be treated with antagonists to

- (a) Insulin receptor
- (b) Growth hormone receptor
- (c) Leutenizing hormone receptor
- (d) Adrenalin receptor

5. Calcitriol is the active form of

- (a) Thyroxine
- (b) Vitamin A
- (c) Vitamin K
- (d) Vitamin D3

II. Fill in the blanks : (5 × 1 = 5)

6. Holometabolous insects wherein the larval forms are completely distinct from each other are known as _____.
7. Estradiol is secreted by _____.
8. During protein hormone synthesis removal of the signal peptide in the endoplasmic reticulum leads to the formation of _____.
9. Inhibin hormone produced by granulosa cells inhibit the production of _____ from the anterior pituitary.
10. Cortisol causes _____ in adipose tissue.

III. Descriptive type (5 × 2 = 10)

11. What is the importance of X-organ?
12. Explain the hormonal control of lactation.
13. Explain the role of aromatase enzyme in sex hormone conversion in males.
14. What is the role of cytochrome P450 in steroid hormone metabolism?
15. How do combined contraceptives work?

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

16. (a) Describe with a neat labeled diagram the role of cerebral ganglia as neuroendocrine system in insects.

Or

- (b) Discuss the role of hypothalamus-pituitary axis in the regulation of female reproductive cycle in humans.

17. (a) Give an account on the abnormalities associated with adrenal gland dysfunction with suitable examples.

Or

- (b) What are prostaglandins? Explain their types, synthesis and biological effects.

18. (a) Comment on the phylogenetic relationships and gene families of human TSH.

Or

- (b) Explain the role of HPG axis in human thyroid hormone synthesis.

19. (a) What is the difference between a peptide hormone and steroid hormone receptor interaction? Discuss the role of antagonists in hormone-receptor interaction and their application.

Or

- (b) Give an account on the mechanism of signal discrimination and attenuation during peptide hormone signaling citing suitable examples.
20. (a) Describe the principle, steps involved and application of TSH assays.

Or

- (b) Discuss the principle and applications of hormone replacement therapy using suitable examples.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

21. What is metamorphosis? Explain its types and hormonal regulation of metamorphosis in insects.
22. Describe the organization of ovarian hormone producing cells. Explain the structure and functions of ovarian hormones.

23. Write an essay on the biosynthesis of androgens and their regulation.

24. How is a hormone metabolized by target and non-target tissues? Discuss with suitable examples.

25. What are hormonal contraceptives? Give an account on the production and application of recombinant hormones for fertility regulation in farm animals citing suitable examples.