2013

ZOOLOGY

(Major)

Paper : 3.2

(Physiology, Endocrinology, Developmental Biology)

Time : 3 hours

The figures in the margin indicate full marks for the questions

Candidates ***eligible*** *for Internal Assessment shall answer from* PART—I *only* (*Marks* : 90)

Candidates ***not eligible*** *for Internal Assessment shall answer both from* PART—I *and* PART—II (*Marks* : 100)

PART—I

(*Marks* : 90)

Answer *any* **two** questions from each Section

SECTION—A

(Physiology)

(*Marks* : 30)

1. Explain the following in brief :

(a) Coordination and control of digestive activity 7

(b) Composition and functions of different body fluids 8

2. What is cardiac cycle? Describe the detailed physiology of origin, conduction and regulation of heartbeat. 3+3+5+4=15

3. Discuss with proper diagram the mechanism of initiation and transmission of nerve impulse through myelinated and non-myelinated nerve fibres. 8+7=15

4. Write short notes on any *three* of the following : 5×3=15

(a) Muscle proteins

(b) Chloride shift

(c) O_2 dissociation curve

(d) Blood clotting mechanism

SECTION—B

(Endocrinology)

(*Marks* : 30)

5. Give a detailed histological structure of adrenal gland in mammal. Mention the different hormones secreted by the adrenal gland. State their physiological functions. 4+5+6=15

6. Explain the hypothalamo-hypophysial axis with proper diagram. Discuss the feed-back mechanism of hormone action with suitable example. 10+5=15

7. Mention the names of hormones secreted by anterior pituitary, endocrine pancreas, ovary and testes. State their physiological functions. 7+8=15

8. Write brief notes on the following : 5×3=15

   (a) Synthesis of thyroid hormone

   (b) Oxytocin and vasopressin

   (c) Second messenger hypothesis

SECTION—C

(Developmental Biology)

(*Marks* : 30)

9. Describe the development of brain in vertebrates with neat labelled diagram. 15

10. *(a)* What is organizer? Discuss the role of organizer in embryonic development. 1+7=8

    (b) What are the different stages of cell cycle? Write in brief the molecular events occurred in different stages of the cell cycle. 2+5=7

11. Describe in detail the physiological and biochemical events of metamorphosis in Amphibia. 8+7=15

12. Write short notes on any *three* of the following : 5×3=15

(a) Fate map construction in chick

(b) Organogenesis

(c) Cellular dynamics in development

(d) Role of hormones in development

PART—II

(*Marks* : 10)

(In lieu of Internal Assessment)

13. Give a detailed classification of the hormones. Describe the molecular mechanism of action for different classes of hormones with proper diagram. 3+7=10

Or

Describe the physiology of urine formation in the kidney with the help of neat labelled diagram. 10

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