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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. (a) Mention the components of bile.
Discuss the role of bile in digestion. 3+5=8

- (b) What is blood clotting? Write about the role of different factors in the process of blood coagulation. 1+6=7
2. What are the respiratory pigments? Mention their properties and function. Describe the process of transport of respiratory gases. 3+4+8=15
3. Describe the detail physiology of urine formation in the kidney with labelled diagram. 15
4. Write brief notes on (any three) : 5×3=15
- (a) Chemistry of muscle contraction
 - (b) Nervous and hormonal regulation of digestion
 - (c) Conduction and regulation of heart beat in mammal
 - (d) Synaptic transmission through myelinated and non-myelinated nerve fibre

SECTION—B

(**Endocrinology**)

(Marks : 30)

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

6. Explain the following :
- (a) Hypothalamo-hypophysial axis 8
 - (b) Synthesis of thyroxine hormone 7
7. Give a detailed classification of hormones. Describe the molecular mechanism of action for different classes of hormones with proper diagram. 3+12=15
8. Write short notes on the following : 5×3=15
- (a) Structure of testis and its hormones
 - (b) Hormones of pancreas and their functions
 - (c) Hormones of adrenal gland and their physiological functions

SECTION—C

(**Developmental Biology**)

(Marks : 30)

9. Discuss the physiological and biochemical events of metamorphosis in insects. Mention the role of hormones in metamorphosis. 10+5=15
10. Describe the stages of cell cycle and their significance in the process of growth and development. 15

11. Describe with labelled diagram the development of eye in vertebrates. 15
12. Explain the following in brief (any three) :
5×3=15
- (a) Role of organizer in embryonic induction
 - (b) Different methods of fate map construction
 - (c) Hormonal control in development
 - (d) Organogenesis

PART—II

(Marks : 10)

(In lieu of Internal Assessment)

13. Discuss with labelled diagram the initiation and conduction of nerve impulse through nerve fibre. State the functions of different neurotransmitters. 8+2=10

Or

Describe the histological structure of adrenal and thyroid gland in mammal. 5+5=10
