

Time : 3 hours

Full Marks : 200

Instructions :

- (1) Answer question numbers **1, 2 and 3** which are compulsory and any other **six** questions from the remaining.
- (2) The figures in the margin indicate full marks for the questions.

1. Define the following : 3×5=15
- (a) Zoogeography
 - (b) Holozoic nutrition
 - (c) Paedogenesis
 - (d) Neurotransmitter
 - (e) Ethology
2. Write short notes on any *five* of the following : 5×5=25
- (a) Golgi complex
 - (b) Hemichordate
 - (c) Oxidative phosphorylation
 - (d) Spermatogenesis
 - (e) Crossing-over
 - (f) Ecological pyramid
3. Answer/Explain any *four* of the following : 10×4=40
- (a) Volant adaptation in animals
 - (b) Significance of genetic code
 - (c) "Ontogeny repeats phylogeny." Clarify the statement.
 - (d) Moulting and metamorphosis in larval insects
 - (e) Blood coagulation

4. Differentiate between each other from any *four* of the following : 5×4=20
- (a) Glycolysis and Gluconeogenesis
 - (b) Exocrine gland and Endocrine gland
 - (c) Endemic species and Invasive species
 - (d) Hibernation and Aestivation
 - (e) Protostomes and Deuterostomes
5. (a) Describe the processes of reproduction in *Paramecium* briefly. 10
- (b) Discuss the stages of life cycle of *Entamoeba histolytica* and its pathogenicity. 10
6. (a) Briefly describe the structure of the cell membrane justifying its selective permeability. 10
- (b) "Mitochondria is the powerhouse of cell." Validate the statement. 10
7. (a) Give an account of life history of tapeworm *Taenia solium* with suitable illustrations. 10
- (b) Describe the phenomenon of polymorphism observed in *Obelia* colony. 10
8. (a) Define Phylum Annelida. Write the characteristic features of different classes under the phylum with examples. 10
- (b) Describe the structures and functions of osphradium of *Pila* and tube feet of starfish. 10
9. (a) Give a brief account of retrogressive metamorphosis in *Ascidia*. 10
- (b) Define migration. Give an account of anadromous migration in fish. 10
10. (a) Illustrate the biting mechanism of poisonous snake using labelled sketch. 10
- (b) Compare the aortic arches of mammals and birds with suitable diagrams. 10

11. (a) Define hormone. Discuss the functions of thyroid hormone in vertebrates briefly. 10
- (b) Explain the mechanism of muscle contraction in detail. 10
12. (a) Define and explain Mendel's law of segregation. 10
- (b) Describe the process of ecological succession in an ecosystem. 10
