

ZOOLOGY

PAPER—II

Time Allowed : Three Hours

Maximum Marks : 200

**QUESTION PAPER SPECIFIC INSTRUCTIONS**

**Please read each of the following instructions carefully  
before attempting questions**

There are EIGHT questions in all, out of which FIVE are to be attempted.

Question Nos. 1 and 5 are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in ENGLISH only.

Neat sketches may be drawn, wherever required.

### SECTION—A

1. (a) Differentiate between inner and outer mitochondrial membrane. 8
- (b) Write about RFLP and AFLP. 8
- (c) Briefly discuss the role of natural selection in industrial melanism. 8
- (d) Explain different steps in the activation of receptor protein tyrosine kinase with diagrams. 8
- (e) Write a note on various rules of nomenclature in animal system. 8
  
2. (a) What are lysosomal enzymes? Explain their origin, structure and functions. 15
- (b) Explain Mendel's law of inheritance and its significance. 15
- (c) Give a brief account of evolution of man in Pleistocene period. 10
  
3. (a) Describe the phenomenon of linkage with example. Why is linkage an exception to Mendel's law of segregation? 15
- (b) What is fossil? Explain different types of fossils and their significance. 15
- (c) Describe semiconservative replication of DNA with experimental evidences. 10
  
4. (a) What is variation? Give an account of different kinds of variations and its importance in organic evolution. 15
- (b) What is mitotic apparatus? Describe its structure and its role during cell division. 15
- (c) How does the regulation of gene expression occur in eukaryotes? 10

### SECTION—B

5. (a) Define the primary structure of proteins and its application in biological studies. 8
- (b) Explain the role of hormones in digestion. 8
- (c) What is cyclic AMP? Describe the structure of cyclic AMP and mention its biochemical role. 8

- (d) What is thermoregulation? How do homeothermic animals sustain by maintaining their body temperature in harsh climatic condition? 8
- (e) Write briefly the mechanism of embryo transfer in animals and its application. 8
- 6.** (a) What is bioenergetics? Explain its role in the catabolic processes of glycolysis and TCA cycle. 15
- (b) What is morphogenesis? Explain the mechanism of changes in the shape of cells during morphogenesis. 15
- (c) With suitable diagrams, explain the mechanism of transmission of nerve impulse in a neuron. 10
- 7.** (a) How does glucagon regulate the glycogen metabolism? 15
- (b) Write a note on different types of placenta in mammals. Explain the role of hCG in human being. 15
- (c) Using R groups properties, classify amino acids. 10
- 8.** (a) Describe the structure and functions of antibody isotypes with diagrams. 15
- (b) Write an account on various types of muscles and their functions. 15
- (c) What is regeneration? Describe regenerative ability in hydra, planaria and urodele amphibians. 10

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