

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.*

*Questions no. 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

- Q1. Write a relative account of each of the following :** **8×5=40**
- | | |
|---|---|
| (a) Transport of small and large molecules across plasma membrane | 8 |
| (b) Euploidy and Polyploidy | 8 |
| (c) Homology and Analogy | 8 |
| (d) Palearctic and Nearctic regions | 8 |
| (e) Plasmids and Cosmids | 8 |

- Q2.** (a) Describe the ultrastructure of mitochondrion and explain why it is considered as a symbiotic cell organelle. 20
- (b) What is Transcription ? Explain the initiation complex and the events leading to the formation of *mRNA* in eukaryotes. 20
- Q3.** (a) What is signal transduction ? With a labelled diagram, explain the steps involved. 20
- (b) Discuss the role of various isolating mechanisms in speciation. 20
- Q4.** (a) Give a historical account of naming an animal species and the validity of binominal system, adding a note on the role of International Code of Zoological Nomenclature (ICZN). 20
- (b) What is continental drift ? When did it occur and what are its evidences ? 20

SECTION B

- Q5. Write notes on each of the following :** **8×5=40**
- (a) Role of actin and myosin in muscle contraction 8
 - (b) Types of placenta 8
 - (c) Embryo transfer 8
 - (d) Cyclic AMP 8
 - (e) Ultrafiltration in mammalian kidney 8
- Q6.**
- (a) Explain what initiates the process of blood coagulation and discuss the role of different factors. 20
 - (b) Describe the complexity of inner ear and its mechanism of hearing. 20
- Q7.**
- (a) Give an account of the structural and functional characteristics of IgE and IgM immunoglobulins. 20
 - (b) What is oxidative phosphorylation ? Describe the steps involved in the process and add a note on the role of enzymes at every step, with a schematic diagram. 20
- Q8.**
- (a) Explain the process of regeneration giving suitable examples from vertebrates. 20
 - (b) Describe the fate map of gastrula with reference to frog. 20