

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. | Write short notes on the following : | 8×5=40 |
| 1.(a) | Structure and functions of mitochondria. | 8 |
| 1.(b) | Watson and Crick model of DNA structure. | 8 |
| 1.(c) | Genetic basis of ABO blood group system. | 8 |
| 1.(d) | Chemical and radiation mutagenesis. | 8 |
| 1.(e) | International code of zoological Nomenclature. | 8 |
| 2. | Write in detail about the following : | 20×2=40 |
| 2.(a) | Describe the structure and functions of plasma membrane in cell. | 20 |
| 2.(b) | What is genome mapping ? Discuss the main goals and accomplishments of human genome project. | 20 |
| 3. | Write in detail about the following : | 20×2=40 |
| 3.(a) | What are different isolating mechanisms ? Discuss their role in speciation. | 20 |
| 3.(b) | What is Hardy-Weinberg law ? Discuss how this law explains the mechanism of evolution. | 20 |

4. Answer the following : 10×4=40
- 4.(a) What is protein synthesis ? Discuss the role of messenger RNA and ribosomes in protein synthesis. 10
- 4.(b) Write down the application of cladistics analysis in summarizing phylogenetic relations. 10
- 4.(c) What is DNA fingerprinting ? Explain the principles and applications of DNA fingerprinting. 10
- 4.(d) What are zoogeographical realms ? Describe the salient features of Indo-Malayan realm. 10

SECTION 'B'

5. Write short notes on the following : 8×5=40
- 5.(a) Glycolytic pathway 8
- 5.(b) Properties of water soluble vitamins. 8
- 5.(c) Structure and functions of immunoglobulin G. 8
- 5.(d) Structure and functions of a mammalian nephron. 8
- 5.(e) Excitatory and inhibitory neurotransmitters. 8
6. Write in detail about the following : 20×2=40
- 6.(a) What is blood coagulation ? Describe the intrinsic pathway of blood coagulation. 20
- 6.(b) Describe the different types of human muscles and their properties. 20
7. Comment on the following : 10×4=40
- 7.(a) Monosaccharides and disaccharides. 10
- 7.(b) Saturated and unsaturated fatty acids. 10
- 7.(c) Steroid and peptide hormones. 10
- 7.(d) Choriovitelline and chorioallantoic placentas. 10
8. Answer the following : 10×4=40
- 8.(a) Describe the fate map of gastrula with reference to chick. 10
- 8.(b) Discuss the basic principles of teratogenesis. 10
- 8.(c) Describe in vitro fertilization and embryo transfer techniques. 10
- 8.(d) Elaborate the Baer's laws of embryology. 10