ZCVB-B-ZOLY

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.

Neat sketches may be drawn, wherever required.

*Answers must be written in **ENGLISH** only.*

SECTION A

Q1. (a) Briefly explain the contributions of George Gamow, Har Gobind Khorana, Marshall Nirenberg and Severo Ochoa in deciphering the genetic code. *8*

(b) How do proteins move through the Golgi apparatus ? Explain. *8*

(c) Explain synonymy and homonymy in context of the International Code of Zoological Nomenclature. *8*

(d) Briefly discuss the role of geographical and reproductive isolations in speciation. *8*

(e) Describe different types of intercellular junctions in animal cells. *8*

Q2. (a) Explain molecular mechanism of chromosome movements in eukaryotes. *15*

(b) What is an Operon ? Explain how a polycistronic structural gene is regulated by a common promoter and a combination of regulatory genes in a *lac*-operon. *15*

(c) Give an account of ancestry of Miocene and Pliocene proboscideans. *10*

Q3. (a) Define Linkage. Give an illustrated account of complete, incomplete and sex linkages. *15*

(b) How does continental drift theory explain the discontinuous and restricted distribution of organisms ? *15*

(c) Explain the phenomenon of endocytosis in organisms with suitable examples. *10*

Q4. (a) Describe the principle, procedure and applications of DNA fingerprinting. *15*

(b) Define Mimicry. Enlist its causes. Explain different types of mimicry with suitable examples. *15*

(c) Give the structure and functions of nuclear envelope. *10*

SECTION B

Q5. (a) Explain quaternary structure of haemoglobin. *8*

(b) What is Bohr's effect ? How does it promote gaseous exchange in the lungs and the tissues ? *8*

(c) What are oligosaccharides ? Give structural formulae and functions of biologically important maltose, sucrose and lactose. *8*

(d) Explain morphogenetic movements in gastrulation of frog. *8*

(e) Briefly write about hormonal control of digestive secretions in humans. *8*

Q6. (a) Describe structural differences among glycogen, starch and cellulose and elaborate their functions. *15*

(b) Explain countercurrent mechanism of urine concentration in the kidneys of higher vertebrates. *15*

(c) What is invasive placenta ? Discuss its types, causes and risk factors. *10*

Q7. (a) Give schematic representation of electron transport chain. Describe the energy coupling mechanism in oxidative phosphorylation using chemiosmotic model. *15*

(b) Enumerate different blood coagulation factors. Explain their role in the process of blood coagulation. *15*

(c) Classify Vitamins. Discuss deficiency symptoms of fat soluble vitamins. *10*

Q8. (a) Why do cells die ? Discuss apoptosis, necrosis and autophagy. Add a note on "cell death proteins". *15*

(b) Explain hormonal regulation of menstrual cycle in women. *15*

(c) Describe the structure and functions of neutral fats. *10*