IFoS 2010

Sl. No. 16347

DP-CHA-050

ZOOLOGY

Paper II

Time Allowed : Three Hours | *Maximum Marks : 200*

INSTRUCTIONS

Candidates should attempt questions 1 and 5 which are compulsory, and any THREE of the remaining questions selecting at least ONE question from each Section.

The marks carried by each question are indicated at the end of every question.

Answers must be written in ENGLISH.

Neat sketches may be drawn, wherever required.

(Contd.)

Section 'A'

1. Answer any *four* of the following : 4×10=40

(a) Give an account of the genetic code with a special note on degenerate and nonsense codons.

(b) Describe the function of "Holliday intermediate" in recombination.

(c) According to "Hardy-Weinberg" law of genetic equilibrium if the frequency of a recessive allele is "q" and that of a dominant allele is "1 – q", what will be the frequency of a heterozygote ? Substantiate your answer with necessary explanation.

(d) Differentiate between Homohabilis and Homoerectus.

(e) Describe the role of lipids in fluidity of biomembranes.

2. Explain gene regulation taking lac operon in bacteria as an example. 40

3. (a) Describe the events in the evolution of Equus. 20

(b) What is a transgenic animal ? Describe the methods of gene transfer, the production and application of transgenic animals with a note on the environmental implications. 20

4. (a) Describe various methods adopted in age determination of fossils. 10

(b) What are Coacervates ? Describe their role in evolution. 10

(c) What is phenylketonuria ? Describe its implications. 10

(d) Differentiate between "Mullerian" and "Batesian" mimicry. 10

Section 'B'

5. Distinguish between any *four* of the following : 4×10=40

(a) Glucocorticoids and mineralocorticoids

(b) Neuromuscular junction and synapse

(c) Macrophages and leucocytes

(d) Essential amino acids and non-essential amino acids

(e) Rods and Cones

6. Explain the role of hormone receptors in elaborating the action of hormones on target organs with emphasis on β-adrenergic receptors and epinephrine. Describe the metabolism of hormone receptors. 40

7. (a) With suitable diagrams, describe isotonic and isometric contraction of a skeletal muscle. 20

(b) Compare the fate maps of a gastrula in frog and chick. 20

8. (a) Describe the structure of "Organ of Corti" and its physiological role. 10

(b) Describe the Osmoregulatory mechanism of marine animals. 10

(c) Give an account of origin and physiological maturation of erythrocytes and leucocytes. 10

(d) Explain the phenomenon of multiple ovulation and its application. 10
