Civil Services (Main) Examination, 2009

ZOOLOGY
(Paper II)

Time Allowed : Three Hours **Maximum Marks : 300**

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.
Candidate has to attempt FIVE questions in all.
Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.
The number of marks carried by a question/part is indicated against it.
Wherever any assumptions are made for answering a question, they must be clearly indicated.
Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Attempt any three of the following: **20×3=60**

(a) Distinguish between sex-linked inheritance and sex-limited inheritance.

(b) Explain mimicry and its significance in the life of animals. Mention relevant examples.

(c) Distinguish between mutation and isolation in the process of evolution.

(d) Distinguish between cladistics and classical taxonomy.

2. (a) Describe the structure and functions of plasma membrane and endoplasmic reticulum. **30**

(b) Explain processes of DNA replication and transcription. **30**

3. (a) Explain the differences in gene regulation and its expression in eukaryotes. **30**

(b) Write a note on application of human blood group types in pedigree analysis. **30**

4. Write short notes (around 200 words each) on the following: **20×3=60**

(a) Factors that contribute to the speciation of animals.

(b) Binomial system of classification.

(c) Human Genome Project.

SECTION 'B'

5. Comment on any three of the following: **20×3=60**

(a) Biosynthesis of steroid hormones and their functions.

(b) Types of stem cells and their applications.

(c) Molecular mechanism of skeletal muscle contraction.

(d) Structure, arrangement and role of photo receptors in the mammalian eye.

6. (a) Give an account of structure and role of cyclic AMP. **30**

(b) Explain the biochemical mechanism of conservation and release of energy in a cell. **30**

7. (a) Explain the process of cellular aging and cell death. **30**

(b) Describe the structure of a mammalian nephron and explain how urine is formed. **30**

English version compiled from published transcriptions and cross-checked across sources; not a facsimile of the official UPSC question paper.

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8. Write short notes on the following in about 200 words each: **20×3=60**

(a) Structure of fatty acids and lipids.

(b) Oogenesis in a mammal.

(c) Role of immunoglobulins in immunity.

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