

CSM-67/24

PART—II/PAPER—VII

ZOOLOGY

PAPER—II

Time : 3 Hours

Full Marks : 250

The question paper contains **18 (Eighteen)** questions in **GROUP—A, (12)** and **GROUP—B, (06)** together.

**GROUP—A**

Candidates to attempt **10 (ten)** questions within word limit of **250**.

Each question carries **15** marks.

1. How does polymerase chain reaction work? What are its applications?
2. What is gene therapy? Write different methods used for gene therapy and different conditions, it can treat.
3. Write about Darwin's theory of natural selection and compare it with Lamarckism and Neo-Darwinism.
4. What is chromatin? Describe chromatin packaging in chromosome organization. Differentiate between euchromatin and heterochromatin.
5. Write about viral architecture, explaining capsid, envelope and genome types. Mention briefly replication strategies.
6. Explain the cell cycle with all its phases and discuss the molecular regulation of the cell cycle and key checkpoints in eukaryotes.
7. Write an essay on the evolution of horse.

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8. Describe the structure of nephron. How does the structure help in water absorption during urine formation?

9. Write an essay on vaccines and their preparations.

10. What is placenta? Give an account of different types of placenta.

11. Give an account of structure and mechanism of contraction of skeletal muscles.

12. Describe the ultrastructure and functions of mitochondria with brief overview of ETS chain.

**GROUP—B**

*Candidates to attempt 05 (five) questions within word limit of 300.*

*Each question carries 20 marks.*

13. Describe cellular organisation of bacteria. Give a brief account of classification of bacteria on the basis of shape, cell wall type, arrangement and flagella.

14. Write a detailed account of translation and post-translational modifications during protein synthesis.

15. Discuss the mechanisms of signal transduction and signal molecules. Briefly mention defects in signalling pathways and their consequences.

16. What are enzymes? Give an account of enzyme action and enzyme kinetics.

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17. Explain the Hardy-Weinberg law, its assumptions and factors affecting gene frequency.

18. Write an essay on sex-linked inheritance.

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