

MFS

A

2007

ZOOLOGY (Optional)

001071

प्राणिशास्त्र (वैकल्पिक)

Time : 3 hours

Maximum Marks : 200

- Note :
- (i) In all attempt five questions.
 - (ii) Question No. 1 is compulsory.
 - (iii) Of the remaining Questions, Attempt any four by selecting one question from each section.
 - (iv) Draw structures, diagrams wherever required.
 - (v) Numbers of optional questions upto the prescribed number in the order in which questions have been solved, will only be assessed and excess answers of the question/s will not be assessed.
 - (vi) Candidate should not write roll number, any names (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise he will be penalised.

1. Answer any four of the following : 40
- (a) Describe Chi-square test and its applications.
 - (b) Write a note on Genome information.
 - (c) "Blood is an important circulating fluid" - Discuss. Add a note on functions of blood.
 - (d) Detail an account of sexual reproduction in Protozoa.
 - (e) Give an account of DNA Fingerprint analysis. Add a note on its applications.

SECTION - A

2. Answer the following sub-questions :
- (a) Detail an account of morphology, chemical composition and functions of mitochondria. 20
 - (b) What is Hardy-Weinberg equilibrium ? Write a note on its applications. 20
3. Answer the following sub-questions :
- (a) What is meiosis ? Describe the major features of each meiotic phase. Also discuss, the significance of meiosis. 20
 - (b) Explain the theory of natural selection. 20

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SECTION - B

4. Answer the following sub-questions :

- (a) "Water : The solvent of life", Discuss. 20
- (b) Describe the structure of DNA and write a note on three important forms of DNA, A-DNA, B-DNA and Z-DNA. 20

5. Answer the following sub-questions :

- (a) Elucidate the structural patterns, types and derivatives of monosaccharides. 20
- (b) Explain the regulation of gene action with reference to : 20
- (i) Inducible Operons and
- (ii) Repressible Operons.

SECTION - C

6. Answer the following sub-questions :

- (a) Give an account of physiology of the thermoregulation. 10
- (b) Describe the process of spermatogenesis. 15
- (c) Discuss epidemiology of diseases caused by protozoans. 15

7. Answer the following sub-questions :

- (a) Detail the structure and function of the human eye. 10
- (b) Describe the development of chickembryo upto a process of gastrulation. 15
- (c) Write an essay on Apiculture. 15

SECTION - D

8. Answer the following sub-questions :

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| (a) Give an illustrated account of parental care in Amphibia. | 10 |
| (b) Write a note on classification on the basis of five kingdoms. | 10 |
| (c) Explain the concept of trophic levels as pyramids in an ecosystem. | 20 |

9. Answer the following sub-questions :

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| (a) Write an essay on Migration in birds. | 10 |
| (b) Briefly describe the biological nomenclature of species. | 10 |
| (c) With the help of a diagram explain the phosphorus cycle in nature. | 20 |

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