

BHD

2006

ZOOLOGY - II (Optional)

000095

Standard : Degree

Total Marks : 200

Nature : Conventional

Duration : 3 Hours

Note :

- (i) Answers must be written in **English** only.
- (ii) Question No. 1 is **Compulsory**. Of the remaining questions, attempt **any four** selecting one question from **each** section.
- (iii) Figures to the **RIGHT** indicate marks of the respective question.
- (iv) Number of optional questions upto the prescribed number in the order in which they have been solved will only be assessed. Excess answers will not be assessed.
- (v) Credit will be given for orderly, concise and effective writing.
- (vi) Neat line drawings are expected wherever necessary.
- (vii) Candidate should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise he will be penalised.
- (viii) For each slab of 10, 15 and 20 marks, the examinee is expected to write answers in 125, 175 and 250 words respectively.

1. Answer **any Four** of the following questions :

- (a) Describe the structure of mitochondria. Mention its function. 10
- (b) Discuss common characteristic features of cloning vectors. 10
- (c) What are antibody vaccines ? Explain with any two examples. 10
- (d) Define Apiculture. Describe honey extractor and its use. 10
- (e) Describe steps involved in PCR. Mention its economic importance. 10

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## SECTION - A

2. Answer the following sub-questions :
- (a) Define meiosis. Describe various stages of Prophase I of meiosis. 10
  - (b) Explain Polytene Chromosomes. Mention its functional importance. 10
  - (c) Describe steps involved in semiconservative method of DNA replication. 10
  - (d) Define Genetic Code. Discuss its general properties and functions. 10
3. Answer the following sub-questions :
- (a) Describe phases of cell-cycle. Mention molecular events that occur during its different phases. 10
  - (b) Explain Lampbrush chromosome structure. Mention its functions. 10
  - (c) What is RNA ? Describe structure of t-RNA and m-RNA. State their functions. 10
  - (d) Describe the process of transcription. Enumerate main factors that are necessary for it. 10

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## SECTION - B

4. Answer the following sub-questions :
- (a) Define multiple alleles. Explain them with suitable hybrid cross. 15
  - (b) Discuss application of stem cells. 10
  - (c) What are databases ? Give different protein sequence databases. 15
5. Answer the following sub-questions :
- (a) Define gene-mutation. Describe the role of radiation and chemicals in inducing such mutations. 15
  - (b) What are transgenic animals ? How they are made ? Describe their importance. 10
  - (c) What are databases ? Give different genome sequence databases. 15

## SECTION - C

6. Answer the following sub-questions :
- |  |    |
|--|----|
| (a) Explain steps involved in Kreb's cycle. Calculate energy obtained from it. | 15 |
| (b) Describe factors affecting enzyme reaction.                                | 15 |
| (c) Describe causes and remedies of AIDS.                                      | 10 |
7. Answer the following sub-questions :
- |  |    |
|--|----|
| (a) What is monosaccharide ? Describe its chemical nature and types with examples. | 15 |
| (b) Explain oil soluble vitamins. Describe their sources and functions.            | 15 |
| (c) Describe ELISA, its direct and indirect types. What is its application ?       | 10 |

## SECTION - D

8. Answer the following sub-questions :
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|---|----|
| (a) Define egg. Describe its different types with examples.                             | 10 |
| (b) What is Organizer ? Describe primary organizer in frog embryo and its significance. | 10 |
| (c) Describe IUD as contraceptives and its importance in population control.            | 10 |
| (d) Describe concept of Ageing. Discuss various theories of its causes in man.          | 10 |
9. Answer the following sub-questions :
- |  |    |
|--|----|
| (a) Define spermatogenesis and explain the process.                | 10 |
| (b) Enumerate functions of Placenta.                               | 10 |
| (c) Discuss advantages and disadvantages of test-tube baby method. | 10 |
| (d) What is Teratogenesis ? Describe its different causes.         | 10 |

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