

2006
Zoology - I (Optional)

000115

Standard : Degree

Total Marks : 200

Nature : Conventional

Duration : 3 Hours

Note :

- (i) Answers must be written either in English or in Marathi.
- (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) 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.
- (vii) 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) Give an account of the life history of the Malarial Parasite in man. 10
- (b) Define "Adaptation". Show briefly how the organization of a bird is adapted to meet the requirements of its life. 10
- (c) Describe the Endocrine part of pancreas. Explain the role of hormones secreted by Islets of Langerhans. 10
- (d) "Wild life is an asset to be protected and preserved to our own advantage and to the benefit of future generations". Discuss. 10
- (e) What is an ecosystem ? Describe the abiotic and biotic components in forest ecosystem. 10

P.T.O.

SECTION - A

2. Answer the following sub-questions :
- (a) What is speciation ? Describe the sympatric speciation. 10
 - (b) What is canal system ? Describe the sycon type of canal system studied by you. 10
 - (c) What is excretion ? Describe the septal nephridium of *Pheretima* with labelled diagram. 10
 - (d) Describe the digestive system of starfish, *Asterias* and add a note on its feeding mechanism. 10
3. Answer the following sub-questions :
- (a) Classify protozoa giving chief characters and examples of each group. 10
 - (b) Define "polymorphism". Describe in Brief polymorphism in *Physalia*. 10
 - (c) Enlist different types of crustacean larvae and with labelled diagram explain zoea larva. 10
 - (d) Give an account of torsion in mollusca. 10

SECTION - B

4. Answer the following sub-questions :
- (a) Discuss the affinities and taxonomic position of *Balanoglossus*. 10
 - (b) Define "parental care". Give an account of parental care in amphibians with reference to *Alytes* and *Pipa*. 10
 - (c) Describe the salient features of *Rhynchocephalia*, *sphenodon* and discuss its affinities. 10
 - (d) Write an essay on dentition in mammals. 10

5. Answer the following sub-questions :

- (a) Define migration. Give an account of catadromous migration with suitable example. 10
- (b) Define neoteny. Explain the same with suitable example you have studied. Add a note on its significance. 10
- (c) How would you distinguish between a poisonous and non-poisonous snake ? What is the basic anatomical difference between the two ? 10
- (d) Give an account of the living wingless or flightless birds of the world with their discontinuous distribution. 10

SECTION - C

6. Answer the following sub-questions :

- (a) Explain homeothermy. Discuss how homeotherms maintain their body temperature in a physiological range irrespective of fluctuations in the environmental temperature. 10
- (b) Write an account of structure and functions of the blood in the vertebrates. 10
- (c) Give an account of the structure and working of vertebrate eye. What is the blind spot in the eye ? 10
- (d) Describe physical changes during muscle contraction. 10

7. Answer the following sub-questions :

- (a) Define osmoregulation. Explain the same in fishes stating one example each from fresh and marine water environment. 10
- (b) What is digestion ? Describe physiology of digestion in mammals. 10
- (c) Describe physiology of urine formation and add a note on its endocrine control. 10
- (d) What are neurotransmitters ? Explain their role in the process of synaptic transmission. 10

P.T.O.

SECTION - D

8. Answer the following sub-questions :
- (a) Explain the flow of energy in an ecosystem. 10
 - (b) Give an account of effects of ozone depletion. 10
 - (c) Write essay on sources of water pollution. 10
 - (d) What is mimicry ? With suitable examples, explain different types of mimicry you have studied. 10
9. Answer the following sub-questions :
- (a) Describe the structure and function of pond ecosystem. 10
 - (b) What is biogeochemical cycle ? Give account of nitrogen cycle. 10
 - (c) What are sanctuaries and national parks ? Give a detailed account of their wild life in your state. 10
 - (d) Give an account of some experimental patterns concerned to physiology of learning in animals you have studied. 10

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