

# ZOOLOGY

## Paper - I

Time Allowed : Three Hours

Maximum Marks : 200

### INSTRUCTIONS

*Candidates should attempt questions 1 and 5 which are compulsory, and any THREE of the remaining questions, selecting at least ONE question from each Section.*

*All questions carry equal marks.*

*The number of marks carried by each part of a question is indicated against each.*

*Answers must be written in ENGLISH only.*

*Neat diagrams are to be drawn, wherever required.*

### IMPORTANT NOTE :

*All parts/sub-parts of a question must be answered contiguously. That is, where a question is being attempted on the answer-book, all its constituent parts/sub-parts must be attempted before moving on to the next question.*

*Pages left blank in the answer-book(s), if any, must be clearly struck out. Answers that follow pages left blank may not be given credit.*

## SECTION A

1. Comment briefly on the following (in not more than 90 words each) : 5×8=40
- (a) Acoelomata and Coelomata
  - (b) Symmetry
  - (c) Migration in fishes
  - (d) Polymorphism
  - (e) Water vascular system in *Asterias*
  - (f) Paedomorphosis
  - (g) Canal system in Porifera
  - (h) Hemichordata
2. (a) Describe various types of locomotion in Protozoa. 15
- (b) Give an account of the general features, life history and parasitic adaptations of *Ascaris*. 15
- (c) What is metamerism ? Describe the general features of *Nereis*. 10
3. (a) Discuss social organization in insects. 15
- (b) Discuss general features and life history of *Hirudinaria*. Mention its parasitic adaptations. 15
- (c) Briefly bring out the shell diversity in Mollusca and the larval forms in Echinodermata. 10
4. (a) Give a detailed account of skull types in Reptilia and discuss the status of sphenodon and crocodiles. 20
- (b) Describe with illustrations various types of respiratory systems in vertebrates. 20

## SECTION B

5. Comment briefly on the following (in not more than 90 words each) : 5×8=40
- (a) Biosphere
  - (b) Habituation
  - (c) Crypsis
  - (d) Tuberculosis
  - (e) Student t-test
  - (f) Scintillation counting
  - (g) Biological rhythms
  - (h) Geiger – Muller counter
6. (a) What is ecological succession ? Give an account of the causes, trends and general process of succession in nature. 20
- (b) Name four pests of sugarcane. Give an account of the life history of any one and describe measures for its prevention and control. 20
7. (a) What is orientation ? Discuss Sun compass orientation in Bees and Starlings. 20
- (b) Name different species of silkworm. Give an account of life history of silkworm and describe the diseases which cause damage to the sericulture industry. 20

8. (a) What is  $H_0$  and  $H_1$  hypothesis ? Describe types of errors in hypothesis testing. What do you understand by a two-way F-test ? 15
- (b) Give an account of principle, working and applications of Spectrophotometry. 15
- (c) Highlight various types of anti-predator behaviour exhibited, with suitable examples. 10