

## ZOOLOGY

## PAPER—I

Time Allowed : Three Hours

Maximum Marks : 200

**QUESTION PAPER SPECIFIC INSTRUCTIONS**

**Please read each of the following instructions carefully  
before attempting questions**

There are EIGHT questions in all, out of which FIVE are to be attempted.

Question Nos. 1 and 5 are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in ENGLISH only.

Neat sketches may be drawn, wherever required.

**SECTION—A**

1. Write a brief account on each of the following : 8×5=40
- (a) Protostomes vs. Deuterostomes
  - (b) Skeleton in Porifera
  - (c) Vision in arthropods
  - (d) Scales in fishes
  - (e) Shell diversity in molluscs
2. (a) What is sexual dimorphism? With the help of labelled diagrams, exhibit this in *Ascaris*. Give an account of the life history of *Ascaris*. 15
- (b) Give an account of locomotor organelles in Protozoa. Discuss various modes of locomotion in this unicellular group. 15
- (c) What is coelom? Describe different types of coelom with the help of suitable diagrams. Draw a linear diagram to show the evolutionary relationship among different phyla based on their coelom. 10
3. (a) "Class Reptilia is divided into five subclasses on the basis of certain openings through the skull." Substantiate this statement with the help of five well-labelled diagrams and examples. 15
- (b) Give an elaborate account of dentition in mammals. 15
- (c) Write an essay on 'migration in birds'. 10
4. (a) Give a comparative account of heart in vertebrates with the help of diagrams only (no description is required). 15
- (b) Give an account of systemic position, habit, habitat and external morphology of *Herdmania*. Also discuss the affinities of *Herdmania*. 15
- (c) Define neoteny and paedogenesis. Give an account of paedogenesis in Amphibia. 10

**SECTION—B**

5. Write a brief account on each of the following : 8×5=40
- (a) Ozone layer and its importance
  - (b) AIDS
  - (c) Student's *t*-test
  - (d) Conditioning behaviour
  - (e) Social behaviour in honeybees
6. (a) Define biological rhythm. Write an account on circadian, tidal and seasonal rhythms. 15
- (b) What are biogeochemical cycles? Describe carbon cycle with a flow diagram. 15
- (c) Describe the principle, working mechanism and applications of Geiger-Muller counter. 10
7. (a) Write about the causative organism, pathogenecity and control measures of tuberculosis. 15
- (b) Define pollution. Explain the sources, impacts and preventive measures of water pollution. 15
- (c) Discuss about the nature of damage caused by and life cycle of the rice pest. Comment on its control measures. 10
8. (a) What is population dynamics and what are its controlling factors? State how population size and density are calculated. Write a note on the importance of population dynamics. 15
- (b) What is aquaculture and its importance? Mention different phyla/groups and their candidate species used in aquaculture. Describe any two major aquaculture practices carried out in India. 15
- (c) What are two types of variables? Explain regression analysis in this context along with biological examples. 10

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