

ZOOLOGY (Paper I)

Time Allowed : Three Hours

Maximum Marks : 250

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

The number of marks carried by a question/part is indicated against it.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

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.

SECTION 'A'

1. Answer the following in about 150 words each: **10×5=50**
- (a) What are minor phyla? Enlist minor phyla with suitable examples.
 - (b) What is Jatinga bird mysty? Is it related with bird migration? Explain.
 - (c) 'Herdmania is a primitive and degenerate descendent of ancestral chordates'. Explain.
 - (d) Apis is known for social behaviour. Discuss.
 - (e) Polychaetes exhibit different modes of life adapted to habitats. Elaborate the statement.
2. (a) Give an account of locomotion in Protozoa indicating locomotor organelle with suitable examples. **15**
- (b) What are corals and coral reefs? Describe different types of coral reefs and their formation indicating different theories. **15**
- (c) Enumerate functions and main components of endoskeleton of vertebrates. Give an account of types of jaw suspensoria in vertebrates with suitable diagrams. **20**
3. (a) Discuss parasitism in 'Copepoda'. Comment on structural peculiarities of parasitic copepods. **15**
- (b) Give an illustrated account of the reproductive system, life history and development of Asterias. **15**
- (c) Give an account of locomotion in Pisces indicating the role of muscles and fins. How do some fish fly? Comment. **20**
4. (a) 'Sphenodon is the most primitive and crocodilians are most advanced of all living Reptiles'. Discuss the statement. **15**
- (b) Give an account of fresh water, egg laying and pouched mammals with suitable examples. **15**
- (c) Give an account of gills and accessory respiratory organs in vertebrates with suitable examples. **20**

SECTION 'B'

5. Answer the following in about 150 words each: **10×5=50**

- (a) What is 'Ganga action plan'? Explain.
- (b) Explain the role of pheromones in alarm spreading.
- (c) 'Biotechnology is a vital tool in modern forensic science'. Comment.
- (d) Differentiate between one-way and two-way analysis of variance (ANOVA). Comment on its applications in biostatistics.
- (e) Electrophoresis is a valuable tool in resolving cryptic-species complexes. Discuss.
6. (a) Discuss social hierarchies in Primates. 15
- (b) What is meant by distribution? Explain patterns of distribution in natural populations. 15
- (c) What are biogeochemical cycles? Discuss nitrogen cycle indicating the role of atmospheric N-fixation, the role of bacteria and the impact of human activity. 20
7. (a) What is chromosome painting? Comment on its principles and scope. 15
- (b) Give an account of causes and consequences of pollution of aquatic resources and the problem of cultural eutrophication. Suggest measures for abatement of water degradation. 15
- (c) Define biodiversity hot-spot and mention the criteria of its selection. Write about biodiversity hot-spots of the Indian sub-region giving their salient features. 20
8. (a) What is Euphenics? Explain its use for improvement of human welfare. 15
- (b) Discuss the status and scope of prawn culture in India. Mention commercially viable and cultivable species of fresh water and brackish water prawns. 15
- (c) What are transgenic animals? How are they produced? Explain their contributions to human welfare. Comment on ethical concerns in relation to transgenesis. 20