

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.*

*Questions no. **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

Q1. Write a brief account of the following : **8×5=40**

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| (a) Sol-gel hypothesis of protozoan locomotion | 8 |
| (b) Spicules in Porifera | 8 |
| (c) Parasitic mode adaptations in nematodes | 8 |
| (d) Ciliary mode of feeding in Branchiostoma | 8 |
| (e) Phenomenon of Pedomorphosis in Amphibia | 8 |

- Q2.** (a) Schematically present the process of conjugation in *Paramecium* sp. Comment on its biological significance. 10+5=15
- (b) Define metagenesis. Elaborate the process of metagenesis in *Obelia* with suitable diagram. 3+12=15
- (c) *Sphenodon* is considered to be a living fossil — Justify. 10
- Q3.** (a) Explain the neuro-endocrine regulation of insect metamorphosis with suitable illustrations. Comment on the role of JH (Juvenile Hormone) in insect metamorphosis. 10+5=15
- (b) Give an account of accessory respiratory structures in fishes with a note on their biological significance. 15
- (c) What is emergency hormone ? How is the secretion of this hormone being regulated ? 4+6=10
- Q4.** (a) Give a comparative account of aortic arches in different Vertebrates with suitable illustrations. 15
- (b) *Peripatus* is a living connecting link between Annelida and Arthropoda. Explain. 15
- (c) Give the scientific name of one amphibious mollusc. How does it respire in aquatic medium ? 2+8=10

SECTION B

- Q5.** (a) Differentiate between culture and capture fisheries. 8
- (b) Comment on the prospects of Sericulture in India. 8
- (c) Write a brief note on Climax Community. 8
- (d) Distinguish between hormone and pheromone with a note on alarm hormone. 8
- (e) Write a brief note on the principle and applications of a spectrophotometer. 8
- Q6.** (a) Give an account on the forest types of India. Why do tropical rainforests support a large number of life forms ? $8+7=15$
- (b) What is population growth ? Delineate different factors affecting population growth. Distinguish between “J” shaped and “S” shaped growth curve with examples. $2+8+5=15$
- (c) Mention the aims and objectives of “Project Tiger”. Comment on its limitations. $5+5=10$
- Q7.** (a) Why do birds migrate ? Give an account of different methods of navigation during bird migration. $6+9=15$
- (b) Briefly narrate different techniques of courtship display among birds. 15
- (c) Give an account on the echolocation in bats. 10
- Q8.** (a) Mention the nature of damage caused by *Pyrilla* sp. to sugarcane. Describe the lifecycle stages of the said pest with proper diagram. Suggest measures to control the pest. $5+6+4=15$
- (b) Name important malaria vectors of India. Elaborate the life cycle of any malaria vector of India. How can the transmission of malaria be checked ? $4+8+3=15$
- (c) What is null hypothesis ? Elaborate the application of chi square test in biology. $4+6=10$

