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*

(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 *Paramoecium* 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*