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: 8x5=40

(a) Phenomenon of polymorphism with reference to Coelenterates 8
(b) Functional morphology of pancreas in mammals 8
(c) Catadromous migration among fishes 8
(d) Structure of scolex in Taenia solium 8
(e) Types of feathers in birds 8
Q2. (a) What is Retrogressive Metamorphosis? Discuss briefly with reference to life history of Ascidians. 10
(b) Compare the functional anatomy of the brain in *Calotes*, *Columba* and *Oryctolagus*. 15
(c) Write an essay on dentition in mammals. 15

Q3. (a) What is Torsion? Describe the significance of torsion and detorsion in Gastropods. 10
(b) Write an essay on modes of reproduction in Protozoa. 15
(c) Describe the larval forms in Echinodermata. Add a note on their evolutionary significance. 15

Q4. (a) Describe the biting and chewing, siphoning and piercing and sucking mouth parts in insects with suitable examples. 15
(b) Describe in detail, the life cycle and pathogenicity of *Leishmania donovani*. 15
(c) Write an account of the canal system in sponges. 10
SECTION B

Q5. Differentiate between the following:  
(a) Bioremediation and Biomagnification  
(b) Correlation and Regression  
(c) Biological Clock and Biological Rhythm  
(d) SEM and TEM  
(e) Infectious and Communicable Diseases  

Q6. (a) “A population is a self-regulating system.” Justify.  
(b) What is Learning Behaviour? Explain the terms Imprinting, Conditional behaviour and Habituation with suitable examples.  
(c) Write an essay on Pearl culture in India. Is it an investment avenue? Comment.  

Q7. (a) What is Pollution? Describe water pollution, its sources and effect on human health.  
(b) What is the causative agent of Tuberculosis? Describe the characteristics, pathogenicity and public health significance.  
(c) What are Natural Resources? Mention any two and discuss the conservation strategies undertaken.  

Q8. (a) What are Mean, Median and Mode? Explain the relationship between these three measures of central tendency.  
(b) What is Scintillation Counting? Explain the principle and its use in biology.  
(c) What are the possible consequences of ozone layer depletion?