राज्य सेवा (मुख्य) परीक्षा- २०२५ परीक्षा दिनांक ०२ मे, २०२६.

2025

D23

BOOKLET NO.
176078

Zoology

Paper – I

Time Allowed : Three Hours **Maximum Marks : 250**

Medium : English **Type of Paper : Conventional/Descriptive**

Question Paper Specific Instructions

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

1. **There are EIGHT questions divided in two Sections, out of which FIVE are to be attempted.**
2. **Question No. 1 and 5 are compulsory. Out of the remaining, THREE are to be attempted choosing at least ONE question from each Section.**
3. The number of marks carried by a question/sub-question is indicated against it.
4. The medium of answer should be mentioned on the answer book as claimed in the application and printed on admission card. The answers written in medium other than the authorized medium will not be assessed and no marks will be assigned to them.
5. Wherever option has been given, only the required number of responses in the serial order attempted shall be assessed. Unless struck off, attempt of a question shall be counted even if attempted partly. Excess responses shall not be assessed and shall be ignored.
6. Candidates are expected to answer all the sub-questions of a question together. If sub-question of a question is attempted elsewhere (after leaving a few page or after attempting another question) the later sub-question shall be overlooked.
7. Keep in mind the word limit indicated in the question if any.
8. Any page or portion of the page left blank in the Answer Booklet must be clearly struck off.
9. Unless otherwise mentioned, symbol and notation have their usual standard meanings. Assume suitable data, if necessary and indicate the same clearly.
10. Neat sketches may be drawn, wherever required.

P.T.O.

SECTION – A

Q1. Write on the following questions in about **150** words **each**. **(5×10=50)**

Q1. (a) Explain the phenomenon of parental care in Amphibians with suitable examples. **10**

Q1. (b) Differentiate between binary fission and multiple fission with the help of suitable examples. **10**

Q1. (c) Describe the terms, Protostomes and Deuterostomes and differentiate between them with suitable examples. **10**

Q1. (d) Explain skeleton in porifera and how skeleton helps in classification of Porifera. **10**

Q1. (e) Explain the phenomenon of Catadromous and Anadromous migration in fishes with examples. **10**

Q2. (a) Describe both Asexual and Sexual phases of life cycle of Plasmodium with suitable diagrams. **20**

Q2. (b) Explain with the help of suitable diagrams, 4 types of canal systems in Porifera and their significance. **15**

Q2. (c) Describe the life cycle of Fasciola and add a note on its pathogenecity. **15**

Q3. (a) With the help of suitable diagrams, explain the evolution of brain from pisces to mammals with suitable examples. **20**

Q3. (b) Explain the reproductive system of Asterias (star-fish) with suitable examples. Add a note on larval stages of Asterias. **15**

Q3. (c) Describe the reproductive system of earthworm and add a note on fertilization. **15**

Q4. (a) Write an account of nervous system and sense organs in cockroach with suitable diagrams. **20**

Q4. (b) Explain the structure and function of master endocrine gland (pituitary) and add a note on its relationship with thyroid gland. **15**

Q4. (c) Explain flight adaptations in birds and their role in migration of birds. **15**

SECTION – B

Q5. Write on the following questions in about **150** words **each.** **(5×10=50)**

Q5. (a) What are measures to control environmental biodegradation ? What are hazards if it is not controlled in time ? **10**

Q5. (b) What are the pheromones ? Explain the role of pheromones in alarm spreading, social behaviour and defense. **10**

Q5. (c) Explain the life cycle of Apis and its role in pollination. **10**

Q5. (d) What are the measures of central tendency ? Explain properties of them. **10**

Q5. (e) Compare and contrast agarose gel electrophoresis and polyacrylamide gel electrophoresis. When would you use one technique over the other ? **10**

Q6. (a) Define Ecosystem. What are different types of ecosystems ? Add a note on structure and components of Ecosystem. **20**

Q6. (b) What are different methods of studying animal behaviour ? Add a note on altruism with examples. **15**

Q6. (c) Explain the concept of frequency distribution. What are the types of frequency distribution ? **15**

Q7. (a) Describe the life cycle of Bombyx mori and explain the stages involved in silk production. Add a note on other types of silk produced by other species of silkworm and their importance. **20**

Q7. (b) Explain the concept of Chi-square test. Differentiate between student-T test and Anova test. How one way and two way F test is calculated ? **15**

Q7. (c) Explain the basic working principle of spectrometer. How mass to charge ratio is measured ? Why this value is assumed to be equivalent to the molecular mass of an analyte ? **15**

Q8. (a) Define the concept of Biodiversity. What are the causes of loss of biodiversity ? Suggest the methods to conserve natural resources. Explain both insitu and ex-situ methods ? **20**

Q8. (b) Give an account of damages caused by pest of sugarcane (*Pyrilla perpusilla)* and of rice (*Sitophilus oryzae*) and other crops. Add a note on both preventive and control measures to control these pests. **15**

Q8. (c) What is correlation coefficient ? How it is measured and what does its value ranges from ? **15**