QUESTION PAPER SPECIFIC INSTRUCTIONS

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

There are EIGHT questions divided in Two Sections and printed both in HINDI and in ENGLISH.

Candidate has to attempt FIVE questions in all.

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

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

Answers must be written in the medium authorized in the Admission Certificate which must be stated clearly on the cover of this Question-cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.

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

Illustrate your answers with suitable sketches and diagrams, wherever considered necessary.

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 answer book must be clearly struck off.
1. Answer the following in about 150 words each:

1. (a) What are minor phyla? Enlist minor phyla with suitable examples.

1. (b) What is Jatinga bird mystery? Is it related with bird migration? Explain.

1. (c) ‘Herdmania is a primitive and degenerate descendent of ancestral chordates’. Explain.

1. (d) Apis is known for social behaviour. Discuss.

1. (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.

2. (b) What are corals and coral reefs? Describe different types of coral reefs and their formation indicating different theories.

2. (c) Enumerate functions and main components of endoskeleton of vertebrates. Give an account of types of jaw suspensoria in vertebrates with suitable diagrams.

3. (a) Discuss parasitism in ‘Copepoda’. Comment on structural peculiarities of parasitic copepods.

3. (b) Give an illustrated account of the reproductive system, life history and development of Asterias.
3. (c) Give an account of locomotion in Pisces indicating the role of muscles and fins. How do some fish fly? Comment.

4. (a) ‘जीवित सरीसृपों में स्कीमोडाल संरचनिक आदि तथा क्रोकोडीलियन्स संरचनिक उत्सर्जन है’। इस कथन की विवेचना कीजिये।
’Sphenodon is the most primitive and crocodilians are most advanced of all living Reptiles’. Discuss the statement.

4. (b) उपयुक्त उदाहरणों सहित मीठे जल के अंध्र (अंधे देने वाले) तथा कोश (कैली वाले) स्तनियों का विवरण दीजिये।
Give an account of fresh water, egg laying and pouched mammals with suitable examples.

4. (c) कैश्लोकियों में उपयुक्त उदाहरणों सहित मिल (गलफड़ों) तथा सहायक श्वसन आंगों का विवरण दीजिए।
Give an account of gills and accessory respiratory organs in vertebrates with suitable examples.

खण्ड ‘B’ SECTION ‘B’

5. निम्नलिखित में से प्रश्नक का उत्तर लगभग 150 शब्दों में दीजिये:

5. (a) ‘गंगा कार्य योजना’ क्या है? व्याख्या कीजिये।
What is ‘Ganga action plan’? Explain.

5. (b) चेतावनी सूत्र (अन्तर्गत क्रियाप्रणाली) में फिसियोलॉजी की भौतिका स्पष्ट कीजिये।
Explain the role of pheromones in alarm spreading.

5. (c) ‘जीव प्रौद्योगिकी आधुनिक फैशनस्टिक विज्ञान का एक महत्वपूर्ण उपकरण है’। इस पर टिप्पणी लिखिये।
‘Biotechnology is a vital tool in modern forensic science’. Comment.

5. (d) एक-मार्गी और द्वि-मार्गी ’एनालिसिस ऑफ बेरियेंस’ (एनोवा) में विवेदन कीजिये। जैवसांख्यिकी में इसके अनुप्रयोगों पर टिप्पणी लिखिये।
Differentiate between one-way and two-way analysis of variance (ANOVA). Comment on its applications in biostatistics.

5. (e) इलेक्ट्रोफोरेसिस गोपक-स्पीशीज कॉम्प्लेक्स के विवेदन का एक महत्वपूर्ण उपकरण है। इसकी व्याख्या कीजिये।
Electrophoresis is a valuable tool in resolving cryptic-species complexes. Discuss.
6.(a) Discuss social hierarchies in Primates.

6.(b) What is meant by distribution? Explain patterns of distribution in natural populations.

6.(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.

7.(a) What is chromosome painting? Comment on its principles and scope.

7.(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.

7.(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.

8.(a) What is Euphenics? Explain its use for improvement of human welfare.

8.(b) Discuss the status and scope of prawn culture in India. Mention commercially viable and cultivable species of fresh water and brackish water prawns.

8.(c) What are transgenic animals? How are they produced? Explain their contributions to human welfare. Comment on ethical concerns in relation to transgenesis.