वनस्पति-विज्ञान (प्रश्न-पत्र I)

BOTANY (Paper I)

निर्दिष्ट समय : तीन घंटे
Time Allowed : Three Hours

अधिकतम अंक : 250
Maximum Marks : 250

प्रश्न-पत्र सम्बन्धी विशेष अनुदेश

कृपया प्रश्नों के उत्तर देने से पूर्व निम्नलिखित प्रश्नकथा अनुदेशों को ध्यानपूर्वक पढ़ें:

इसमें आठ(8) प्रश्न हैं जो दो खण्डों में विभाजित हैं तथा हिंदी और अंग्रेजी दोनों में छपे हैं।

परीक्षार्थी को कुल पांच प्रश्नों के उत्तर देने हैं।

प्रश्न संख्या 1 और 5 अन्विताभिन्य तथा बाकी में प्रत्येक खण्ड से कम-से-कम एक प्रश्न चुनकर किन्हीं

तीन प्रश्नों के उत्तर दिएं।

प्रश्नों के उत्तर उसी प्राधिकृत माध्यम में लिखे जाने चाहिए, जिसका उल्लेख आपके प्रश्न-पत्र में किया गया है,

और इस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (कृ.सी.ए.) पुस्तिका के मुखपृष्ठ पर निर्दिष्ट स्थान पर किया

जाना चाहिए। प्राधिकृत माध्यम के अनुसार अव्व तिथियों में लिखे गए उत्तर पर कोई अंक नहीं मिलेगी।

प्रश्नों में शब्द सीमा, जहाँ निर्दिष्ट है, का अनुसरण किया जाना चाहिए।

जहाँ आवश्यक हो, अरेख/चित्र उत्तर के लिए दिए गए स्थान में ही दर्ज किया जाए।

प्रश्नों के उत्तरों की गणना कमांडसूटर की जाएगी। यदि काटा नहीं हो, तो प्रश्न के उत्तर की गणना की जाएगी।

बह उत्तर अंशतः दिया गया हो | प्रश्न-सह-उत्तर पुस्तिका में बाकी छोड़ दिए हुए या उसके अंश को स्पष्ट रूप से

काटा जाना चाहिए।

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.

Questions No. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question 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 a medium other than the authorized one.

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

Diagrams/figures, wherever required, may be drawn in the space provided for answering

the question itself.

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.

SDF-U-BTN
SECTION ‘A’

1. Describe the following in about 150 words each:

1.(a) Mycorrhizal association and its importance in plants.

1.(b) Differentiation between bioremediation and bioleaching.

1.(c) Nature and significance of plant-endophyte relationship.

1.(d) Alternation of heteromorphic generations in Bryophytes.

1.(e) Draw a well labelled longitudinal sectional view of the structure of capsule of Funaria.

2.(a) What are the characteristic features, means of reproduction and economic importance of Ascomycetes?

2.(b) Describe the characteristics and replication of viroids.

2.(c) What are the critical features of heterosporous and seed habit in pteridophytes.

3.(a) Write the name of causal agent, symptoms and control measures of yellow vein of Okra and Tundu disease of wheat.
3.(b) Comment on the structure and ecological and physiological importance of leaf of *Azolla*.

3.(c) Compare the thallus forms of brown and green algae.

4.(a) Compare and contrast the systems of classifications of Bentham and Hooker, and Hutchinson. Add a note on their merits and demerits.

4.(b) What causes anomalous secondary growth in some dicot plants? Explain.

4.(c) State the applications of Microbiology in Agriculture.

5. Describe the following in about 150 words each.

5.(a) Importance of haploid plant production from pollen grains.

5.(b) Hydrocarbon yielding energy crops and advantages of biodiesel.

5.(c) Steps in the production of somatic hybrids and their advantages.

5.(d) Illustrate Kranz anatomy in a typical C4 plant leaf.

5.(e) Palynology and its significance.

6.(a) Define herbarium and give methods of its preparation and also mention the names of five major herbaria.
6.(b) Write botanical names and families of the plants yielding beverages, narcotics and gums.

6.(c) What are the identifying characters, floral diagram and floral formula of Verbenaceae and Liliaceae?

7.(a) Highlight the main features of Vavilov’s centres of origin of crop plants.

7.(b) Define totipotency and discuss cytodifferentiation in plants.

7.(c) How is Embryology useful in Taxonomy?

8.(a) How many types of embryo-sacs are known among angiosperms? Describe their formation. Give one example for each.

8.(b) Discuss the salient features of Gnetales. Why are they regarded as the most evolved Gymnosperms?

8.(c) What are the different stages of micropropagation? Mention its advantages.