Civil Services (Main) Examination, 2002

BOTANY

(Paper I)

Time Allowed : Three Hours **Maximum Marks : 300**

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.
Candidate has to attempt FIVE questions in all.
Question Nos. 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.
Wherever any assumptions are made for answering a question, they must be clearly indicated.
Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Answer any three of the following in not more than 200 words each: **20×3=60**

(a) Recent studies reveal that mesosomes are artifacts and not true structures. Discuss.

(b) What is heterospory? Discuss seed habit in pteridophytes giving suitable examples.

(c) Describe the ultra structure and role of heterocyst in blue-green algae.

(d) Describe the economic importance of bryophytes giving suitable examples.

2. (a) What are biosensors? Describe the applications of microbiology in industry. **30**

(b) What are mycorrhizae? Describe economic potential of mycorrhizal fungi in agriculture and forestry. **30**

3. What is apogamy? Describe the structure and arrangement of sex organs in bryophytes with the help of suitable diagrams. **60**

4. (a) Differentiate between hybrids and cybrids. How are cybrids obtained? **30**

(b) What is callus? Describe the process of differentiation from callus. **30**

SECTION 'B'

5. Answer any three of the following in not more than 200 words each: **20×3=60**

(a) What are progymnosperms? Describe with examples their morphology.

(b) Differentiate between velamen and exodermises.

(c) What is 'Krantz anatomy'? Where do you find it? Describe its structure and importance.

(d) Write an account on Shibpur Botanical Garden and Royal Botanic Gardens, Kew (England).

6. What is polyembryony? Describe the practical value of polyembryony. **60**

7. (a) What is palynology? Describe the applications of palynology. **30**

(b) Describe the origin of wheat, maize and rice. **30**

8. Give salient features of flower of the following families. Give economic importance of three plants from each family **15×4=60**

(a) Ranunculaceae

English version compiled from published transcriptions and cross-checked across sources; not a facsimile of the official UPSC question paper.

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(b) Euphorbiaceae

(c) Dipterocarpaceae

(d) Orchidaceae

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