Civil Services (Main) Examination, 1999

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.
All questions carry equal marks.
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

(a) What is mycoplasma? How does it differ from a fungus? Describe the important mycoplasma diseases of plants and their methods of control.

(b) Write an account of different types of steles found in pteridophytes with the help of suitable diagrams. Arrange these steles in an evolutionary sequence.

(c) With the help of suitable diagrams describe in detail the reproductive organs found in Batrachospermum. Comment on the life cycle. How does the life cycle of Batrachospermum differ from that of Polysiphonia?

(d) Differentiate between the spore bearing organs of Anthoceros and Polytrichum. Draw neat labelled diagrams.

2. Classification of the class Phaeophyceae is based on various kinds of life cycles. Discuss. Make graphic representation of all types of life cycles.

3. **(a)** Write an account of the role of microbes in environmental pollution management programmes.

(b) With the help of diagrams only describe the life history of Puccinia

4. Distinguish between the following pairs giving suitable labelled diagrams: (any three)

(a) Carpogonium and Archegonium

(b) External morphology of Psilotum and Equisetum

(c) Desmids and Diatoms

(d) Liverworts and Mosses.

SECTION 'B'

5. Answer any three of the following in not more than 200 words each:

(a) Describe the anomalous secondary growth in three dicot stems. Draw labelled diagrams in each case.

(b) Give the methodology and applications of tissue culture technique.

(c) Describe the major stomatal types in plants.

(d) Describe the anatomy of root stem transition region with the help of suitable diagrams only.

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

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6. Write an account of the floral structure of the following families (i) Euphorbiaceae (ii) Rubiaceae (iii) Orchidaceae Give botanical names of three important plant species belonging to each of the three families. Specify why these are important.

7. Give an account of the vegetative anatomy of Cycas with the help of diagrams. Enumerate important differences in the anatomical features of Cycas and Gnetum (only vegetative features).

8. **(a)** What is palynology? Describe the basic and applied importance of this science.

(b) Enumerate various types of angiospermic embryo sacs in a tabular form.

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