Civil Services (Main) Examination, 2013

BOTANY

(Paper I)

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

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.
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.

SECTION 'A'

1. Briefly describe the following in not more than 150 words each: **10×5=50**

- **(a)** Role of microbes in medicine industry
- **(b)** Various kinds of biofertilizers and their uses
- **(c)** Different types of life cycles found in algae
- **(d)** Types of protosteles
- **(e)** Lysogenic type of life cycle in viruses

2. **(a)** With the help of suitable diagrams, describe the life cycle of a heteroecious rust. **18**

(b) Describe the various methods of genetic recombination in bacteria. **18**

(c) Discuss the importance of totipotency in tissue culture. **14**

3. Draw well-labelled diagrams of the following: **12½×4=50**

- **(a)** LS of antheridiophore of Funaria
- **(b)** LS of sporophyte of Anthoceros
- **(c)** Section through a sorus of fern
- **(d)** Female thallus with archegoniophore of Marchantia

4. Give the causal organism, symptoms and control measures of the following: **12½×4=50**

- **(a)** Wilt of Arhar
- **(b)** Green ear disease of Bajra
- **(c)** Tundu disease of Wheat
- **(d)** Red rot of Sugarcane

SECTION 'B'

5. Describe the following in about 150 words each: **10×5=50**

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

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(a) Beta taxonomy

(b) NPC system

(c) Application of palynology

(d) Distribution of cycads in India

(e) Double fertilization

6. Write an account of the floral structure of each of the following families. Give the botanical names of three important plant species belonging to each of the three families and specify their uses:

(a) Poaceae **17**

(b) Liliaceae **17**

(c) Asclepiadaceae **16**

7. Describe the following:

(a) Types of endosperms **17**

(b) Types of ovules **17**

(c) Apomixis **16**

8. **(a)** Give the botanical names of ten important fibre-yielding plants and describe their uses. **25**

(b) Compare and contrast Bentham and Hooker's system of classification with Hutchinson's system of classification. **25**

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