Civil Services (Main) Examination, 1996

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) Give an account of the role of microbes in industry.

(b) Describe the process of fertilization (from pollination to gametic fusion) in angiospermic plants.

(c) Describe the development of cystocarp in Rhodophyceae.

(d) Trace the evolutionary trends in the gametophytes in bryophytes.

2. Give a concise account of the symptoms, disease cycle, life cycle of the causal organism and control measures of any four of the following:

(a) Powdery mildew of wheat

(b) Downy mildew of grapes

(c) Early blight of potato

(d) Bacterial blight of paddy

(e) Yellow vein mosaic of bhindi

3. (a) Describe the life cycle of a blue green algae and discuss its role in nitrogen economy of the soil. Why it is otherwise called as cyanobacterium?

(b) Give a general account of plant viruses, their ultra structure and mode of transmission.

(c) Describe the structure and discuss the morphological nature of the spike of Ophioglossum.

4. (a) Discuss the salient features in the life cycle of Coleochaete and their evolutionary significance.

(b) Describe the steps of dikaryotization [?] and development of basidium in Basidiomycetes.

(c) Write short notes on the following: (i) Apothecium (ii) Elater (iii) Oogonial conceptacle of Fucus (iv) Azolla

SECTION 'B'

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

(a) Discuss the role of palynology in systematics of flowering plants.

(b) Describe the development of typical dicot embryo.

(c) Discuss the role of hormones in cell differentiation.

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(d) Give an account of the staminate strobilus in Gnetum upto the stage of pollen germination.

6. (a) Describe anomalous secondary growth in the stems of (i) Aristolochia (ii) Dracaena

(b) What is a natural system of classification of plants? Give the outline of Bentham and Hooker's system of classification justifying that it is a natural system.

(c) Describe the development of the male cone of Pinus till the germination of pollen grain.

7. (a) Give an account of the characteristic features of the family Asclepiadaceae along with floral diagram and floral formula. Give botanical names of three plants belonging to the family.

(b) What are haploid plants? How do they originate? What is their utility in crop improvement?

(c) Write brief notes on the following (i) Periderm (ii) Helobial endosperm (iii) Protoplast (iv) Pinus needle

8. (a) What is micropropagation? Describe various routes by which plants are micropropagated through tissue culture.

(b) Give an account of the family Arecaceae (Palmae) with floral diagram and floral formula of any representative member. Give botanical names of five plants of the family having economic importance.

(c) Write short notes on the following: (i) Flower of Hibiscus (ii) Female gametophyte of Gnetum (iii) Pollen embryo sac

(d) Give brief account of the following: (i) Senescence (ii) Nucellus (iii) Interxylary phloem (iv) Coenospecies (v) Embryo culture

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