Civil Services (Main) Examination, 2004

AGRICULTURE

(Paper II)

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 about 200 words each: **20×3=60**

(a) Briefly describe leucoplastids and chromoplastids.

(b) Define DNA and RNA, and compare them with each other.

(c) What is heterosis? Explain its role in crop improvement.

(d) Define mass selection. Describe the procedure of mass selection in brief.

2. (a) Define transpiration. What are the factors affecting transpiration? **20**

(b) Give an account in brief on hybrid rice production. **20**

(c) Define insect resistance in plants. Narrate achievements and accomplishments attained so far. **20**

3. (a) Define pure line selection. Discuss the merits and demerits of pure line selection. **20**

(b) What is clone? Compare clones, inbreds and pure lines. **20**

(c) Define photosynthesis in plants. Narrate the sequential processes occurring therein with an illustration. **20**

4. (a) Define disease epidemic. Discuss in brief the causes of epidemics. **20**

(b) What is distant hybridization? Describe in brief the limitations of distant hybridization in crop improvement. **20**

(c) Focus objectives and activities of grain storage institutions in India. **20**

SECTION 'B'

5. Answer any three of the following in about 200 words each: **20×3=60**

(a) Briefly explain the various classes of seeds. Describe the requirements for certified seeds.

(b) Define pest. Bring out various groups of crop pests quoting an insect for each and discuss how an insect outbreak occurs.

(c) Describe in brief the package of practices for cultivation of papaya.

(d) Define microbial control. Describe the procedure for mass production of NPV of a lepidopteran pest.

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. **(a)** Discuss in brief the factors responsible to low yield of vegetables in India. What measures are necessary to increase their production? **20**

(b) Define pest forecasting. Describe how the pest forecasting is done in India and the fruits are made available to the farmers. **20**

(c) Discuss in brief the significance of Integrated Pest Management (IPM) in crop production. Suggest suitable IPM measures for sugarcane. **20**

7. **(a)** Describe in brief the requirements of certified seeds. **20**

(b) Briefly mention the use of fungicides for the control of diseases of potato. **20**

(c) Discuss in brief the microbial toxins. **20**

8. Write short notes on the following:

20×3=60

(a) Preservation methods of fruits and vegetables

(b) Stored grain pests

(c) Bacillus thuringiensis

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