QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions

There are EIGHT questions in all, out of which FIVE are to be attempted.

Question Nos. 1 and 5 are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

The number of marks carried by a question/part is indicated against it.

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.

Answers must be written in ENGLISH only.
SECTION—A

1. Answer the following :  

(a) What are chromosomal aberrations? Describe the structural aberrations and their genetic significance.

(b) Discuss the role of heterosis in crop improvement with suitable examples.

(c) Explain the breeding methods of rice crop.

(d) Explain the different stages of seed development with suitable diagram.

(e) Discuss the role of auxin and cytokinins in plant growth and development.

2. Distinguish between the following :  

(a) Heterochromatin and Euchromatin

(b) Sex-linked and Sex-limited characters

(c) Pedigree and Bulk method of plant breeding

(d) Growth regulator and Growth inhibitor

3. Answer the following :  

(a) Describe the backcross method and its application in agriculture.

(b) What are the safeguards for maintenance of genetic purity of seed?

(c) Describe the role of transpiration in relation to productivity.

4. Answer the following :  

(a) Discuss the special types of chromosomes.

(b) Discuss the methods of gene transfer to plants. Explain how it is achieved in cotton for insect resistance.

(c) Discuss the molecular basis of mutation.

DFG-D-AGRC/42 2
5. Answer the following:

(a) Briefly discuss the package of practices for commercial production of banana.

(b) Discuss the principles and components of integrated pest and disease management.

(c) Describe the techniques of hi-tech horticulture.

(d) Discuss the national initiatives for food and nutrition security.

(e) Define photoperiodism and discuss its mechanism in short-day plants.

6. Answer the following:

(a) Describe the changes that take place in plant during development.

(b) Discuss different types of preservation of fruits and vegetables.

(c) Enlist the insect pests of cruciferous vegetables indicating their nature of damage and management practices.

7. Answer the following:

(a) Discuss high-density planting system in fruit crops with its characteristics and advantages with examples.

(b) Classify insect pests based on their feeding habits with suitable examples.

(c) Describe the nature of damage, life cycle and management of pulse beetle and rice weevil.

8. Answer the following:

(a) Discuss the challenges and opportunities of marketing tomato and onion in India.

(b) What is organophosphate insecticide? Explain its mode of action.

(c) What are the socio-economic characteristics affecting food consumption pattern in India? Discuss them with examples of recent trends.

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