

AGRICULTURE

PAPER—II

Time Allowed : Three Hours

Maximum Marks : 200

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 :

8×5=40

- (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 :

10×4=40

- (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 :

15+15+10=40

- (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 :

15+15+10=40

- (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.

SECTION—B

5. Answer the following :

8×5=40

- (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 :

10+15+15=40

- (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 :

15+10+15=40

- (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 :

15+10+15=40

- (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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