

CSM – 7/21
Agriculture
Paper – II

Time : 3 hours

Full Marks : 300

The figures in the right-hand margin indicate marks.

*Candidates should attempt Q. No. 1 from
Section – A and Q. No. 5 from Section – B
which are compulsory and any **three** of
the remaining questions, selecting
at least **one** from each Section.*

SECTION – A

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

(a) Distinguish between the following with
suitable examples :

- (i) Pedigree method and Backcross
method

- (ii) Mitosis and Meiosis
 - (iii) Aneuploidy and Polyploidy
 - (iv) Sex linked characters and Sex limited characters
 - (v) General combining ability and Specific combining ability
- (b) Give a brief account on role of biotechnology in crop improvement.
- (c) Briefly explain the mechanism of disease and pest resistance in crop plants with suitable examples.
- (d) Give a brief account on types of male sterility in crop plants and their utilization in crop improvement.

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

- (a) Explain in brief about modes of reproduction in crop plants.

- (b) State and explain the laws of heredity with suitable examples.
 - (c) Explain in brief about intra-chromosomal structural aberrations.
 - (d) Write in brief about role of wide hybridization in crop improvement.
3. Answer any **three** questions of the following in about **200** words each : 20×3 = 60
- (a) Define Seed technology and describe the roles and goals of seed technology.
 - (b) Write, in detail, about different kinds of seeds.
 - (c) Write about the role of public and private sectors in seed production, processing and marketing in India.
 - (d) What is seed production ? Enumerate the factors responsible for loss of genetic purity and explain the safeguards for maintenance of genetic purity during seed production.

4. Answer any **three** questions of the following in about **200** words each : $20 \times 3 = 60$

- (a) Explain, in detail, the steps involved during the seed development and also, explain morphological, physiological and biochemical changes taking place during seed development.
- (b) Explain the different bio synthetic pathways of auxin and ABA their mode of action and physiological roles.
- (c) Explain, in detail, the electron transport and phosphorylations in light reaction of the Photosynthesis. Explain the difference between C3 and C4 plants.
- (d) Explain, in detail, osmosis, diffusion, imbibition and transpiration. Explain the process of absorption and translocation of water in plants.

SECTION – B

5. Answer any **three** questions of the following in about **200** words each : $20 \times 3 = 60$

- (a) Write about the responses of crops to temperature and describe the effects of temperature in fruit crops.
- (b) Describe the different methods of lawn making.
- (c) Define VRA and write about the different types of VRA and their role in hitech horticulture.
- (d) Describe the national problems in mango fruit production.

6. Answer any **three** questions of the following in about **200** words each : $20 \times 3 = 60$

- (a) Describe the principal methods of plant disease management citing suitable examples.

- (b) Describe different modes of action of biocontrol agents. Give suitable examples where biological control has been incorporated in the integrated disease management programme.
- (c) Illustrate four economically significant viral diseases of horticultural crops and its management.
- (d) Define epidemics. Describe about the various factors governing epidemics.

7. Answer any **three** questions of the following in about **200** words each : $20 \times 3 = 60$

- (a) Illustrate the three important rust diseases of wheat and its management.
- (b) Illustrate the important diseases of mango and its management.
- (c) Describe the different steps involved in the production of oyster mushrooms.

(d) Describe the different soil and foliar methods of application of fungicides.

8. What is Food Security ? What is the status of food security in India ? Mention the challenges to food security in India ? What are the initiatives taken by Government of India ? Suggest the steps to be taken to ensure food security. 60

