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Sl. No.

DP-CHA-040

AGRICULTURE

Paper II

Time Allowed : Three Hours

Maximum Marks : 200

INSTRUCTIONS

Candidates should attempt questions 1 and 5 which are compulsory, and any THREE of the remaining questions selecting at least ONE question from each Section.

The number of marks carried by each question is indicated at the end of the question.

Answers must be written in ENGLISH.

Section 'A'

1. Attempt any *four* of the following in about 150 words each : $4 \times 10 = 40$
- (a) Explain genetically modified crops citing one successful example in India.
 - (b) What is gene ? Briefly discuss the classical, modern and molecular concepts of gene.
 - (c) Discuss the mechanism of fruit ripening.

(Contd.)

- (d) What is heterosis? Briefly discuss its significance in enhancing crop yields.
 - (e) Explain seed health testing and its importance in quality seed production.
2. Answer the following in about 150 words each :
- (a) Discuss the phenomenon of totipotency of a cell and its significance in tissue culture. 10
 - (b) Briefly describe the different types of recurrent selection. Give the advantages of recurrent selection. 10
 - (c) Discuss the importance of seed certification. Briefly describe the certification process. 10
 - (d) Discuss briefly the various theories on flowering in relation to photoperiodism and vernalization. 10
3. Answer the following in about 150 words each :
- (a) Discuss the significance of cytoplasmic inheritance in crop plants with examples. 10
 - (b) Discuss the need for conservation and sustainable use of plant genetic resources. Give the methods for characterisation of germplasm resources. 10
 - (c) Discuss critically the strengths and weaknesses of public and private sectors in seed production and marketing. 10
 - (d) Discuss the importance of drought resistance and give methods for induction of drought resistance. 10

4. Distinguish between the following in about 150 words each : $4 \times 10 = 40$
- (a) Euploids and Aneuploids
 - (b) Horizontal and Vertical Resistance
 - (c) Auxins and Gibberellins
 - (d) Seed dormancy and viability

Section 'B'

5. Answer the following in about 150 words each : $4 \times 10 = 40$
- (a) What is balanced diet? Discuss briefly the importance of fruits and vegetables in human nutrition.
 - (b) Discuss the impact of modern agriculture on disease and insect pests scenario.
 - (c) What is Bordeaux mixture? Describe method of its preparation and give its uses and limitations.
 - (d) What are Koch's postulates of pathogenecity? State their importance in plant pathology.
6. Differentiate between the following in about 150 words each : $4 \times 10 = 40$
- (a) Formal and informal Gardens
 - (b) *Trichogramma* and *Trichoderma*
 - (c) Green ear and white ear
 - (d) Fruit fly and White fly

7. Answer the following in about 150 words each :

- (a) What are the chronic problems in the production of mango? Discuss the recent technologies to overcome them. 10
- (b) Discuss the procurement and distribution constraints of food grains in India. 10
- (c) Discuss the production technology for 'Gerbera' under greenhouse conditions. 10
- (d) Give package of practices for tomato cultivation. 10

8. Write short notes on the following in about 150 words each : $4 \times 10 = 40$

- (a) Bonsai culture
- (b) Biopesticides
- (c) Disease forecasting
- (d) Design and layout of a rock garden