

CSM – 7/17

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

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1. Answer any **three** of the following : $20 \times 3 = 60$
 - (a) Write notes on any **four** questions of the following :
 - (i) Cytoplasmic inheritance
 - (ii) Induced mutation
 - (iii) Aneuploidy
 - (iv) Heterobeltiosis
 - (v) Sex linked inheritance

(b) Differentiate between any **four** of the following :

- (i) Centre of origin and Centre of diversity
- (ii) Domestication and Introduction
- (iii) Selection and Acclimatization
- (iv) Mitosis and Meiosis
- (v) Natural selection and Artificial selection

(c) Explain, how effectiveness of selection is affected by any **two** of the following :

- (i) Heritability
- (ii) Linkage
- (iii) Epistasis

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(d) Comment on the following :

- (i) Transgressive segregation in crop improvement
- (ii) Role of diverse parents in hybridization

2. Answer any **three** of the following : $20 \times 3 = 60$

- (a) Define emasculation. Briefly describe various methods of emasculation in crop plants.
- (b) Describe the procedure of mass selection and discuss its merits and demerits.

- (c) Describe the role of bio-technology, genetic engineering and molecular breeding in crop improvement programmes.
- (d) Describe the various operations in production of hybrid varieties.

3. Answer any **three** of the following : $20 \times 3 = 60$

(a) What is seed certification ? Describe various operations involved in certified seed production.

(b) Explain the importance of the following things in quality seed production :

- (i) Grading
- (ii) Germination
- (iii) Isolation.
- (iv) Roguing
- (v) Pest control in seed crops

(c) Write short notes on any **five** questions of the following :

- (i) Breeder Seed
- (ii) Seed Processing
- (iii) Hybrid Seed
- (iv) NSC

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- (v) Seed Processing
 - (vi) Field Inspection
 - (d) Describe the steps involved in Hybrid seed production in rice.
4. Answer any **three** of the following : $20 \times 3 = 60$
- (a) Describe the process of protein synthesis in crop plants.
 - (b) Describe the physiological processes involved in seed development in plants.
 - (c) Plant growth regulators are double edged swords. Justify the statement with suitable examples.
 - (d) Write short notes on any four of the following :
 - (i) Transpiration
 - (ii) Osmosis
 - (iii) Vernalization
 - (iv) Water use efficiency
 - (v) C_4 plants

SECTION – B

5. Answer any **three** of the following : $20 \times 3 = 60$
- (a) Describe, in brief, the cultivation aspect of banana with respect to climate, soil,

varieties, spacing, propagation, irrigation, harvesting, yield and post-harvest handling.

- (b) What are the problems faced by the mango growers of India ? Suggest the remedial measures to overcome the problem.
- (c) Mention the types of grasses used in a lawn. Describe the different methods of establishing a lawn and its maintenance.
- (d) Describe the different systems of planting in orchard and which system is most suitable for highly fertile in a sub-urban area ?
6. (a) Why biological control of pests and diseases are given more emphasis now-a-days and how it differs from other methods of disease and pest management ? 20
- (b) Describe the physiological disorders of cole crops. How will you rectify them ? 20
- (c) What do you mean by crop rotation ? Highlight crop rotation model to bridge the gap of protein-calorie malnutrition. 20

7. (a) Describe the commercial cultivation aspects of paddy-straw mushroom. 20
- (b) Mention the Integrated Plant Protection Measures to control fruit and shoot borer of brinjal. 20
- (c) Indicate the role of rhizobium in agriculture. 20

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8. Write short notes on the following : $20 \times 3 = 60$
- (a) Protected cultivation of commercial flowers
- (b) Multistoried cropping
- (c) Bio-pesticides

