

Roll No.

Total No. of Pages : 3

1(CCEM)0

Agriculture

(01)

Paper—II

Time : Three Hours]

[Maximum Marks : 300

- Note** :—
- (i) Answers must be written in English.
 - (ii) Candidates should attempt **Q. 3** and **Q. 4** which are compulsory and any **FOUR** out of the remaining questions, selecting at least **ONE** question from each Section.
 - (iii) The number of marks carried by each question is indicated at the end of the question.
 - (iv) Part/Parts of the same question must be answered together and should not be interposed between answers to other questions.
 - (v) The answer to each question or Part thereof should begin on a fresh page.
 - (vi) Your answers should be precise and coherent.
 - (vii) If you encounter any typographical error, please read it as it appears in the text-book.

SECTION–A

1. (a) Explain the Mendel's Law of Inheritance and discuss how it helped in the breeding programmes.
- (b) Discuss in detail about the application of the principles of plant breeding in the improvement of rice.
- (c) What is seed replacement ratio ? Explain the role of National and State seed organizations on the promotion of improved seeds.

3×15=45

2. (a) Explain how photosynthesis and respiration takes place in plants. What are the modern concepts by which the efficiency of photosynthesis can be increased ?
- (b) Discuss on the crop growth rate (CGR), relative growth rate (RGR) and net assimilation rate (NAR) in growth and development of crops with suitable examples.
- (c) What is post harvest management and value addition in Agriculture ? Explain how they help in commercialization of agricultural produce. $3 \times 15 = 45$
3. Answer any **FOUR** of the following :-
- (a) Storage pests and management
- (b) Fruit and vegetables in human nutrition
- (c) Supply chain management in marketing
- (d) Photorespiration and its significance
- (e) Morphology patterns in plant breeding. $4 \times 15 = 60$
4. Explain in detail on the scientific cultivation practices of apples with more emphasis on the International market demand. $1 \times 60 = 60$
5. (a) Discuss on the role of enzymes in growth and development of crops.
- (b) How spontaneous and induced mutations are useful in breeding ? $2 \times 22.5 = 45$

SECTION-B

6. Explain :
- (a) Explain how sex linked, sex influenced and sex limited characters are helpful in breeding.
- (b) Cytoplasmic inheritance and male sterile lines.
- (c) Quantitative characters in plant breeding. $3 \times 15 = 45$
7. Explain :
- (a) Heterosis and its exploitation
- (b) Aerobic and anaerobic respiration
- (c) Integrated management of pests and diseases. $3 \times 15 = 45$
8. Answer any **FIVE** of the following :
- (a) Hygiene of storage godowns
- (b) National and International food policies
- (c) Major deficiencies of calorie and protein
- (d) Food production to national dietary pattern
- (e) Value addition of food
- (f) Food contamination. $5 \times 9 = 45$
9. Explain in detail how the heterosis in breeding is fully exploited and what advantage we get out of this ? $1 \times 45 = 45$
10. Answer any **FIVE** of the following :-
- (a) Ornamental horticulture
- (b) Preservation of fruits
- (c) Plant regulators and growth
- (d) Translocation of water in plants
- (e) Mutation and polyploidy in breeding
- (f) Care and maintenance of pesticide equipments. $5 \times 9 = 45$