**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. 3×15=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. 4×15=60

4. Explain in detail on the scientific cultivation practices of apples with more emphasis on the International market demand. 1×60=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 ? 2×22.5=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. 3×15=45

7. Explain :

   (a) Heterosis and its exploitation

   (b) Aerobic and anaerobic respiration

   (c) Integrated management of pests and diseases. 3×15=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. 5×9=45

9. Explain in detail how the heterosis in breeding is fully exploited and what advantage we get out of this ? 1×45=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. 5×9=45