

**FS – 4 / 15-16**

**Agriculture**

**Paper – II**

*Time : 3 hours*

*Full Marks : 200*

*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 **two** of the following in about **200** words each :  $20 \times 2 = 40$

- (a) Narrate the significance of Laws of Heredity in plant breeding. Explain what is meant by recombination breeding. Discuss the importance of chromosomal aberrations and linkage and crossing-over in recombination breeding techniques.

(b) Write notes on any **four** of the following :

(i) Micro and Macro Mutation and their role in crop improvement

(ii) Cytoplasmic Inheritance

(iii) Importance of Selfing and Crossing techniques

(iv) Sex limited characters

(v) Importance of Interspecific and Intergeneric hybridization

(c) What is meant by hybrid vigour ? How can this technique be made profitable in Agriculture ? Give a brief account of the limitations of hybrid vigour in crop improvement. How can this technique be improved further ?

2. Distinguish between certified seed and breeder seed. How best the seed viability would help in crop production ? Narrate the different seed processing techniques and their importance in Agriculture. 40

3. Answer any **two** of the following :  $20 \times 2 = 40$

(a) Distinguish between the following :

(i) Plant Growth Promoters and Plant Growth Retardants

(ii) Seed Dormancy and Seed Viability

(iii) Sterility and Incompatibility

(iv) Photoperiods and Thermoperiods

(b) What is the main role of pigments in plants ?

Explain with examples. List out the major types of enzymes bio-synthesized in crops and their significant role in crop growth.

(c) Give a brief account of the types of vernalization and its importance in agriculture and horticulture with suitable examples.

4. Answer any **two** of the following :  $20 \times 2 = 40$

(a) When in a given atmospheric condition, the two crops viz., Maize and Rice are cultivated, will there be any difference in carbon assimilation efficiency between them ? Justify your answer with suitable evidences.

(b) Give a brief account of significant role of plant growth regulators in Agricultural and Horticultural crops.

(c) What is the major component of pulses seed and how it is synthesised ? Explain with suitable examples and sketches.

### SECTION – B

5. Answer any **two** of the following :  $20 \times 2 = 40$

(a) What do you mean by global warming ?

Discuss the impact of climate change in agriculture. Narrate the strategies to be adopted for alleviating the climatic effects in crop production.

(b) Give a brief account of the methods of preservation of fruits and vegetables.

Narrate how are they processed. Explain their significance.

(c) Narrate the various techniques of High-tech horticulture, the crops suitable and their economic importance.

6. Answer any **two** of the following :  $20 \times 2 = 40$
- (a) Mode of action of contact and systemic pesticides with suitable examples.
  - (b) Give a brief account on the various diseases and pests of tropical vegetables, tropical fruit crops and their management.
  - (c) How would you forecast pests and diseases incidence of crops ? Give a brief account of the significance of biological control of pests and diseases in horticultural crops with suitable examples.
7. (a) Discuss the storage pests and diseases observed in cereals with examples and methods of control thereof. 20
- (b) Briefly explain the commercial importance of bee keeping. 20
8. (a) Explain the food production and its consumption pattern in national dietary and its impact in alleviating the malnutrition. 14
- (b) Constraints in food production and procurement. 14
- (c) Microbial toxins 12



6. Answer any two of the following.  $20 \times 2 = 40$
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- (b) Constraints in food production and procurement.  $14$
- (c) Microbial toxins  $12$

