Roll No……..….. **Total No. of Printed Pages: 1**
Total No. of Questions: [09]

B.Sc. (Hons) Agriculture (Semester – 6th)
CROPS IMPROVEMENT-II (RABI CROPS)
Subject Code: BAGRS1-656
Paper ID: [19130160]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a. What are the centres of origin for maize and wheat?
b. What is meant by the term 'Plant Genetic Resources' (PGR)?
c. Name two major abiotic stress factors that affect crop production.
d. What is an ideotype in crop breeding?
e. Name any one method used for conserving plant genetic resources.
f. Give an example of a modern biotechnology tool used in crop breeding.
g. What role do biotic stress-resistant varieties play in sustainable agriculture?
h. Define the term 'wild relatives' in the context of crop improvement.
i. Give an example of a modern biotechnology tool used in crop breeding.
j. Explain the term 'gene bank' in the context of crop genetic resource conservation.

Section – B **(5 marks each)**

Q2. Discuss the challenges and strategies for the development of climate-resilient varieties, including drought, salinity, and heat stress tolerance.

Q3. Define the term "quality" in crop improvement. Discuss how physical, chemical, and nutritional quality traits are improved in crops.

Q4. Explain the problems and current status of crop improvement in India, with special reference to the work done in Punjab.

Q5. Differentiate between qualitative and quantitative traits in crop genetics, giving examples of each in major crops.

Q6. Describe the role of National and International centres of crop improvement, emphasizing their contributions to global crop enhancement efforts.

Section – C **(10 marks each)**

Q7. Compare and contrast conventional and non-conventional methods for crop improvement. Discuss the advantages and limitations of each.

Q8. Describe the major breeding procedures used in developing high-yielding, disease-resistant, and stress-tolerant varieties. Illustrate your answer with examples from relevant crops.

Q9. Describe the importance of wild relatives in the crop improvement process. How do they contribute to enhancing genetic diversity in cultivated crops?