

2021

BOTANY — HONOURS

Paper : SEC-B-3

(Plant Breeding)

Full Marks : 80

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer the following questions : 2×10
- (a) Define apomixis.
 - (b) Give two merits of mass selection in breeding programme.
 - (c) What is meant by acclimatization?
 - (d) What is progeny testing?
 - (e) Define distant hybridization. Give an example.
 - (f) What do you mean by domestication? Give an example.
 - (g) Write one application of recurrent selection.
 - (h) Name a chemical mutagen and mention its mode of action.
 - (i) Mention two gene transfer techniques.
 - (j) How does colchicine help in plant breeding?
2. Answer **any four** of the following : 5×4
- (a) State the contrivances and consequences of self pollination.
 - (b) Write a short note on tissue-culture application in plant breeding.
 - (c) Briefly enumerate the different ways of germplasm maintenance.
 - (d) Write a short note on inbreeding depression.
 - (e) Write a short note on back cross method and its application.
 - (f) Write a note on pedigree method of breeding.
3. Answer **any four** of the following :
- (a) What are the objectives of plant breeding? Discuss the achievements and undesirable consequences of plant breeding. 3+4+3

Please Turn Over

- (b) Define molecular marker and genetic marker. Which one of the above two mentioned is more favourable and why? Write a note on the unique features of molecular marker. (1+1)+3+5
- (c) What is pure-line? Compare pure-line selection with mass selection. Mention one advantage and one disadvantage of pure-line selection. 1+6+3
- (d) What is meant by male-sterility? What are the types of male sterility? How is male sterility utilised in plant breeding? 1+4+5
- (e) What is heterosis? Explain the genetic basis of heterosis. 2+8
- (f) Discuss the role of polyploidy and biotechnology in crop improvement. 5+5
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