

B.Sc. (Ag.) Honours Semester-IV Examination, 2017
Course No.: GPB-221
(Principles of Plant Breeding)

Signature of Centre Superintendent

Roll No.: (in figure)_____ (in words)_____
Student Index No._____ Regn. No._____ of _____

Time: Two Hours

Full Marks: 40

Questions are of value as indicated in the margin

Part-I
(Objective and Short Answer Type)
(Use only ball point pen)

Time: 20 minutes

Full Marks: 10

Note: 1. Answer in question paper itself.
2. Striking, rewriting or overwriting are not allowed in the objective type questions.

1. State True (T) or False (F) in respect the following statements: (any ten)

0.5×10=5

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|--|--------------------------|
| a) Progeny of a single cross-bred homozygous organism is pureline. | ☐ |
| b) Inbreeding depression is a converse phenomenon of heterosis. | ☐ |
| c) Individuals in an F ₁ population derived by crossing two different homozygous parents are genetically identical. | ☐ |
| d) Out-crossing leads to genetic variation in a pureline population. | ☐ |
| e) Off-season nursery cannot be used in SSD method. | ☐ |
| f) Linkage drag may be a menace in back-cross method of breeding. | ☐ |
| g) ICPH-8 is CGMS based hybrid of pigeon pea. | ☐ |
| h) RSGCA uses inbred tester. | ☐ |
| i) Natural selection is more in SSD than in bulk method. | ☐ |
| j) Sexual progeny of clone will show no inbreeding depression. | ☐ |
| k) All seeds in a cob of maize represents full-sibs. | ☐ |
| l) Maximum number of three-way crosses using three inbreds is one. | ☐ |

2. Define the following terms: (any five)

1×5=5

- a) Inbreeding

(2)

b) Heterosis

c) Clone

d) Hybrid

e) Pure line

f) Self incompatibility

g) Herkogamy

B.Sc. (Ag.) Honours Examination, 2017

Semester-IV

Course No.: GPB-221

(Principles of Plant Breeding)

Part - II

(Descriptive Type)

Time: 100 Minutes

Full Marks: 30

Questions are of value as indicated in the margin.

Answer *any three* questions

3. (a) Define plant breeding. What are the objectives of plant breeding? 1+5=6
(b) What is acclimatization? Write about the factors affecting acclimatization. 1+3=4
 4. (a) What is centre of origin? Write about different Centres of origin with examples of at least two crop plants. 1+6=7
(b) What are the different manifestation of inbreeding and genetic reasons thereof? 3
 5. (a) What is pedigree? Give an outline of pedigree method of breeding. What are the demerits of this method? 1+4+2=7
(b) What are the advantages of clonal selection? 3
 6. (a) What is male sterility? Describe different types of male sterility. 1+6=7
(b) What are the advantages of two-line hybrid breeding? 3
 7. (a) Write in short the method of inducing mutation and handling and advancing of mutated population. 6
(b) How are different ploidy levels useful in crop improvement? 4
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