

2025

**M.Sc. in Agriculture
1st Semester Examination**

GENETICS AND PLANT BREEDING

Paper : GPB-504

(Varietal Development and Maintenance Breeding)

Full Marks : 70

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : 2×5=10

1. Define orthodox and recalcitrant seed.
2. What is an essentially derived variety (EDV)?
3. What is an obsolete variety?
4. Differentiate between grain and seed.
5. What is the real value of seed?
6. Explain detasseling.

P.T.O.

(2)

7. Explain the peroxidase test of seed.
8. Define carry-over seed.

Group - B

Answer any *four* questions : $5 \times 4 = 20$

9. Write a short note on seed certification procedure.
10. Briefly explain Plant Breeder's Rights (PBR).
11. Write down the different methods of varietal purity analysis.
12. Write a short note on DUS test and VCU test.
13. What are the general principles of seed crop inspection?
14. What is seed dormancy? Explain different methods for breaking seed dormancy. $1+4$

Group - C

Answer any *two* questions : $10 \times 2 = 20$

15. Briefly explain the different classes of improved seed.
16. Discuss the certified seed production of (i) double cross hybrid maize and (ii) hybrid sorghum. $5+5$
17. Mention the concept of genetic purity and describe the role of maintenance breeding in ensuring genetic purity. State the factors responsible for genetic deterioration of varieties. $2+4+4$

(3)

18. Briefly mention the salient features of the Seed Act.
Discuss the role of following implementation of the Seeds
Act : 2+8=10

- (i) Central seed testing laboratory
- (ii) Seed certification agency
- (iii) Central seed committee
- (iv) Seed Inspector.

Internal Assessment : 20 marks
