



Total Pages : 2

B.Sc./5th Sem/BOT/25(NEP)

2025

5th Semester Examination (CCFUP : NEP)

BOTANY

Paper : MJ 8-T (Single Core Major)

[Genetics & Plant Breeding]

Full Marks : 40

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 : $2 \times 5 = 10$

1. What is inbreeding depression?
2. State Hardy Weinberg's Law.
3. Why transposable elements are called jumping genes?
4. What is synapsis? Mention the different parts of chiasma.
5. What are linkage groups? Give an example.
6. What is frame shift mutation? Cite an example.
7. How does heterosis differ form physiological affluence?
8. What is co-efficient of co-incidence? Define map unit.

P.T.O.

VN-5/29 - 700



Group - B

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

9. Contrast codominance and incomplete dominance with example. 5
10. At which stage of meiosis crossing over does occur? Explain in brief the cytological basis of crossing over. 1+4
11. Define extranuclear inheritance. How does Kappa particle of *Paramecium* show infectious heredity? 2+3
12. Explain pleiotropy. Illustrate the role of polygenes in quantitative inheritance. 2+3
13. Explain penetrance and expressivity with examples. 5
14. Define genetic drift. Explain dominant epistasis (masking gene action) mentioning phenotypic ratio and citing a suitable example. 1+4

Group - C

Answer any *one* question : $10 \times 1 = 10$

15. Why the method is named as pure line selection and mention its procedure. Comment on its advantages and limitations. Write short notes on (i) clonal selection and (ii) pedigree method of selection. 3+3+2+2
16. Explain AC-DS elements in maize. Mention their significance in gene regulation. How does population bottleneck determine founder effect? 3+3+4

