

U.G. 6th Semester Examination - 2026**BOTANY****[MAJOR-X]****Course Code : BOT-MJ-CC-T-10****(Genetics, Biometry and Plant Breeding)****[NEP-2020]**

Full Marks : 40

Time : 2½ Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer any **five** questions of the following:

2×5=10

- i) Define Mendalism.
- ii) What do you mean by dominance? Give an example. 1+1
- iii) What do you mean by multiple alleles?
- iv) Define median.
- v) Define euploidy.
- vi) What is central dogma?
- vii) Define heterosis.
- viii) What is null hypothesis?

[Turn Over]

2. Answer any **two** questions of the following:

5×2=10

- i) Explain linkage and crossing over. $2\frac{1}{2}+2\frac{1}{2}=5$
- ii) Describe the mechanism of semi-conservative DNA replication. 5
- iii) Explain the lac operon in *E.coli* with proper diagram. 3+2 = 5
- iv) Describe extra chromosomal inheritance with an example. 4+1=5

3. Answer any **two** questions of the following:

10×2=20

- i) Describe DNA as a genetic material and explain Meselson and Stahl experiment. 5+5
- ii) Explain mutation, mutagens and DNA repair mechanism in details. 2+2+6
- iii) Discuss Mendel's principles of inheritance and their significance. 7+3
- iv) Discuss the methods of crop improvement in self-pollinated plants. 10