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## **NEPWT—31—2024**

### **FACULTY OF SCIENCE**

#### **M.Sc. (First Year) (Second Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2024**

**BOTANY**

Paper SBOTC-1451

(Cell Biology, Genetics and Plant Breeding)

**(Wednesday, 11-12-2024)**

**Time : 10.00 a.m. to 1.00 p.m.**

*Time—3 Hours*

*Maximum Marks—80*

*N.B. :—* (1) Question No. 1 is compulsory.

(2) Of the remaining attempt any *three* questions.

(3) Draw neat and well labelled diagrams wherever necessary.

1. Write brief notes on the following : 20

(a) Cell signalling

(b) Epistasis

(c) Genetic drift

(d) Importance of hybridization.

2. (a) Describe structure and function of cell membrane. 10

(b) Explain structure and functions of chromosome. 10

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3. (a) Explain in detail cytoplasmic inheritance. 10
- (b) Describe factors affecting gene frequency. 10
4. (a) Describe in detail crossing over. 10
- (b) Describe characters of multiple alleles with suitable example. 10
5. (a) Describe incompatibility and male sterility in plants. 10
- (b) Describe procedure and applications of mutational breeding. 10
6. Write brief notes on the following : 20
- (a) G-protein coupled receptor
- (b) Crossing over
- (c) C-value paradox
- (d) Types of self-pollination.

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