



FD-315

M.Sc. 1st Semester
Examination, Dec.-Jan., 2021-22

BOTANY

Paper - II

Genetics

Time : Three Hours] [*Maximum Marks* : 80

Note : Answer **all** questions. All questions carry equal marks.

Unit-I

1. Describe the structure of chromosome and packaging of DNA.

OR

Write short notes on any **two** of the following :

- (a) Polytene chromosome
- (b) Karyotype and Idiogram
- (c) Molecular organization of centromere and telomere

(2)

Unit-II

2. Write an essay on chromosomal aberration and polyploidy.

OR

Write short notes on any **two** of the following :

- (a) Mapping of bacteriophage genome
- (b) Recombination in phage
- (c) Transformation in bacteria

Unit-III

3. Write an essay on mechanism of crossing over.

OR

Write short notes on any **two** of the following :

- (a) Linkage
- (b) Genetic marker
- (c) Tetrad analysis in *Neurospora crassa*

Unit-IV

4. Describe the plant breeding techniques.

OR

(3)

Write short notes on any **two** of the following :

- (a) Alien gene transfer
 - (b) Heterosis and Inbreeding depression
 - (c) Methods for detecting alien chromatin production
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