

C 4710

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Name.....

Reg. No.....

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, APRIL 2021**

(CBCSS)

Botany

**BOT 2C 05—CYTOGENETICS, GENETICS, BIostatISTICS, PLANT BREEDING AND  
EVOLUTION**

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

**General Instructions**

1. *In cases where choices are provided, students can attend **all** questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

**Part A**I. Answer any *four* questions. Each question carries 2 weightage :

- 1 What is QTL mapping ?
- 2 Discuss translocation heterozygotes.
- 3 Write a short note on B chromosomes.
- 4 Define Germplasm. What are the methods by which it can be conserved ?
- 5 With an example of achievement, discuss breeding for stress resistance.
- 6 Explain the central tendencies for analysis of data.
- 7 Distinguish between euploidy and aneuploidy. What is its effect on the phenotype ?

(4 × 2 = 8 weightage)

**Part B**II. Answer any *four* questions. Each question carries 3 weightage :

- 8 What are retrotransposons ? Discuss their significance in evolution.
- 9 List out and explain the steps involved in designing an experiment.

**Turn over**

- 10 Discuss the techniques of chromosome microdissection and microcloning.
- 11 Discuss IPR and the farmer's right act.
- 12 Analyse the role of mtDNA in inheritance.
- 13 What is Hardy Weinberg law ? How can the Hardy Weinberg equilibrium be altered ?
- 14 With examples, discuss selection as a plant improvement technique.

(4 × 3 = 12 weightage)

### Part C

III. Answer any *two* questions. Each question carries 5 weightage :

- 15 Discuss the role of molecular markers in plant breeding. Critically evaluate transgenic plants.
- 16 With examples, discuss any five types of mobile genetic elements.
- 17 What are chromosomal aberrations ? Give an account on the structural chromosomal aberrations and their role in evolution.
- 18 Describe the methods of tabulation and presentation of data in research.

(2 × 5 = 10 weightage)