

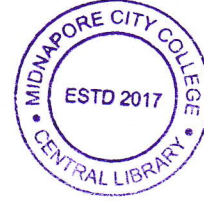
M.Sc. Semester-I Examination, 2022
(AGRICULTURE) IN GENETICS AND PLANT BREEDING
PAPER: GPB 505
(PRINCIPLES OF CYTOGENETICS)

Full Marks: 50

Time: 2 Hours

GROUP-A**1. Answer any FIVE questions from the following:****2 X 5 = 10**

- a) What is Univalent shift?
- b) Explain bridge species.
- c) Write down about Alien addition and substitution line.
- d) Define Double haploid
- e) Mention the importance of CDK.
- f) Explain Evolution of Brassica.
- g) What is lampbrush Chromosome?
- h) What is nucleolar organizer region (NOR)?

**GROUP-B****2. Answer any FOUR questions from the following:****5 X 4 = 20**

- a) What is Karyotype? Briefly explain about Karyogram and Ideogram.
2+3
- b) Briefly explain about Polytene Giant chromosomes.
- c) Write a short note on cell cycle.
- d) Explain the factors affecting crossing over and Chiasma formation.
- e) Discuss different types of duplication in chromosomal aberration. Enumerate the origin of duplication.
- f) What is nullisomy? Discuss its origin.
- g) Define allopolyploidy. Explain about segmental allopolyploidy.
- h) What is dysploidy? Briefly explain about U-triangle.

(P.T.O.)

GROUP-C

3. Answer any TWO questions from the following:

10 X 2 = 20

- a) What are the differences between haploid and monoploid? Discuss the different types of haploids. What are the characteristics of autopolyploid species? Describe the evolution of cotton. 2+4+2+2=10
- b) What is chromosome banding? Describe the different types of chromosome banding techniques. Explain in situ hybridization? Discuss the application of in situ hybridization. 1+5+2+2 =10
- c) What is structural chromosomal aberration? Discuss briefly different types of structural chromosomal aberrations. What is the evolutionary significance of chromosomal aberration? 1+7+2=10
- d) Enumerate the differences between autopolyploid and allopolyploid? How the aneuploids are produced and what are their uses? Explain aneuploid analysis in wheat. 2+3+5

