

M.Sc. (Ag.) Examination, 2019
Semester-II
Genetics and Plant Breeding
Course : GPB-502
(Principles of Cytogenetics)

Time : 3 Hours

Full Marks : 50

Questions are of value as indicated in the margin

Answer **any five** questions from the following

1. a) Define chromosome banding. List different types of chromosome banding techniques.
b) Discuss briefly about C-banding techniques.
c) Write importance of chromosome banding. (1+2)+5+2=10
 2. a) Define translocation and give its different types.
b) Draw pachytene configurations in translocation heterozygote and discuss its chromosome disjunction at Anaphase I (with gametic output, without crossing over) (1+2)+(6+1)=10
 3. a) What is fertilization barrier in crop plants? Mention and discuss its different types.
b) What are the techniques to overcome barriers in crop plants? (1+4)+5=10
 4. a) Define structural aberration.
b) Discuss briefly different structural chromosomal aberration. What is the evolutionary significance of structural chromosomal aberration? (1+(7+2)=10
 5. a) What is synapsis? How does it differ from crossing over?
b) What are the different theories of crossing over? Explain
c) Draw the picture of different stages of meiosis-I. (1+1)+4+4=10
 6. a) Distinguish between haploid and monoploid.
b) Discuss the different types of haploid.
c) What are the characteristic features of autopolyploid species?
d) Describe the evolution of *Brassica*. 2+4+2+2=10
 7. Write short notes on following (**any four**): 2.5×4=10
a) Chiasma terminalization b) Wide hybridization c) Bridge species
d) Lampbrush e) Evolution of bread wheat
 8. Difference between the following (**any four**): 2.5×4=10
a) Euchromatin and Heterochromatin
b) Karyotype and Ideogram
c) Secondary and Tertiary trisomic
d) Adjacent I and Adjacent II segregations
e) Homologous and Homoeologous chromosomes
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