

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)

Subject : Botany

Course : CC-XIII

(Genetics and Plant Breeding)

Time: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates are required to give their answers in their
own words as far as practicable.*

1. Answer *any five* from the following: 2×5=10
- What is three point 'test cross'? Mention its significance.
 - Define Hardy Weinberg's Law.
 - What do you mean by inbreeding depression?
 - What is dosage compensation? Cite example.
 - Comment on penetrance and expressivity.
 - What are the benefits of allopatric speciation?
 - Differentiate between paracentric and pericentric inversion.
2. Answer *any two* from the following: 5×2=10
- What are pure lines? Write a short account on the steps of hybridization in a self-pollinated crop. 1+4
 - Distinguish between dominant and recessive epistasis citing examples.
 - What is amphidiploidy? Why allopolyploidy is considered as more advantageous than autopolyploidy? 2+3
 - What is mutation? Describe the different types of point mutations with suitable diagram. 2+3
3. Answer *any two* from the following: 10×2=20
- With a suitable example discuss the role of chloroplast DNA in inheritance. What is cytoplasmic male sterility? Explain it with its application. 3+7
 - What is crossing over? Discuss the cytological basis of crossing over. Explain coupling and repulsion with suitable example. 2+3+5
 - Write short notes on the following: 2½×4=10
 - Split gene
 - Ac-Ds system
 - Distant hybridization
 - Polygenic inheritance
 - Write a brief note on DNA repair mechanism. What are IS elements? 8+2