

6/H-62 (vii) (Syllabus-2015)

2 0 1 8

( April )

BOTANY

( Honours )

( Genetics, Plant Breeding, Molecular Biology )

( BOTH-601 )

Marks : 56

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

Answer **five** questions in total, in which

Question No. **1** is compulsory. Select the remaining  
**four** questions, **one** from each Section

1. Write short notes on the following : 4×4=16

- (a) Operon concept
- (b) Multiple allilism
- (c) Chromosomal deletions
- (d) Advantages of mass selection

( 2 )

SECTION—I

2. Give a detailed account of Meiosis-I with suitable diagrams and mention its significance. 5+2+1
3. What is gene interaction? With the help of suitable examples, explain the term 'epistasis'. What is the significance of epistasis? 2+5+1

SECTION—II

4. What are sex chromosomes? Give an account of the mechanism of chromosomal sex determination. 2+8
5. What is cytoplasmic inheritance? Explain the phenomenon of cytoplasmic inheritance in variegated leaves of *Mirabilis*. 2+8

SECTION—III

6. What is the importance of hybridization in crop improvement? Describe the procedure of hybridization in self-pollinated crops. 3+7
7. Differentiate between heterosis and inbreeding depression. Explain the significance of heterosis in plant breeding. 4+6

( 3 )

SECTION—IV

8. Give an account of the mechanism of protein synthesis in prokaryotes. 10
9. Discuss the following : 5+5=10
- (a) Clover leaf model of tRNA
- (b) Bacterial transduction

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