

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

2 0 1 9

(April)

BOTANY

(Honours)

**(Plant Reproductive Biology and
Plant Biotechnology)**

(BOTELH-602)

Marks : 56

Time : 3 hours

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

Answer **five** questions in total. Question No. 1 is compulsory. Answer remaining **four** questions, selecting **one** from each Section

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

- (a) Pollen allergy
- (b) Haustoria and its functions
- (c) Somatic embryogenesis
- (d) Phages as vectors

(Turn Over)

(2)

SECTION—I

2. Explain in detail pollen production and dispersion in time and space. 10
3. What do you understand by the term 'microgametogenesis'? Describe the phenomenon of microgametogenesis with the help of suitable diagrams. 3+7=10

SECTION—II

4. What is megagametogenesis? With suitable diagrams, differentiate between monosporic and bisporic types of embryo-sac development. 3+7=10
5. What is embryogeny? Giving suitable diagrams, explain embryogeny in dicotyledonous plants. 2+8=10

SECTION—III

6. Explain the following : 5+5=10
- (a) Totipotency and its significance
- (b) Cryopreservation

D9/1781

(Continued)

(3)

7. With the help of suitable illustrations, explain the following : 5+5=10
- (a) Somatic hybridization
- (b) Production of haploids in plants

SECTION—IV

8. Write short notes on the following : $2\frac{1}{2} \times 4 = 10$
- (a) Advantages and disadvantages of genetic engineering
- (b) Bt cotton
- (c) Blunt end cloning
- (d) Bioinformatics as a tool in molecular biology
9. Give a brief account on vectors used for gene cloning. 10

D9—2100/1781

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

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

2019

(April)

BOTANY

(Honours)

(Genetics, Plant Breeding, Molecular Biology)

(BOTELH-601)

Marks : 56

Time : 3 hours

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

Answer **five** questions in total. Question No. **1** is compulsory. Answer the remaining **four** questions, selecting **one** from each Section

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

- (a) Synaptonemal complex
- (b) Chemical mutagens
- (c) Okazaki fragments
- (d) XX-XY mechanism of sex determination in plants

SECTION—I

2. With the help of a suitable diagram, give an account of the levels of organisation of a eukaryotic chromosome. 3+7=10
3. With the help of a suitable example, explain complementary gene interaction. Elucidate the differences between complementary and supplementary genes. 7+3=10

SECTION—II

4. What is extranuclear inheritance? How does it differ from nuclear inheritance? Explain the phenomenon with the help of an example. 2+2+6=10
5. (a) Write notes on the different types of chromosomal structural aberrations. 5
(b) Differentiate between autopolyploidy and allopolyploidy giving suitable examples. 5

SECTION—III

6. Describe the methods of mass selection for crop improvement. Mention its advantages and disadvantages. 6+4=10

7. What is induced mutagenesis? Give an account of the role of induced mutations in crop improvement. 2+8=10

SECTION—IV

8. Describe the salient features of Watson and Crick's model of DNA double helix. How was it proved that DNA replication is semi-conservative? 5+5=10
9. Discuss the following : 5+5=10
 - (a) Mechanism of transcription in prokaryotes
 - (b) Bacterial transduction
