

2015

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant Breeding and Bioinformatics)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

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

1. Write short notes on the following : $3\frac{1}{2} \times 2 = 7$
- (a) Duplication
 - (b) Cytoskeleton

Or

Give an account of the physical structure of chromosomes. 7

2. Write brief notes on the following : $3\frac{1}{2} \times 2 = 7$
- (a) Allopolyploidy
 - (b) Types of aneuploidy

G16/150a

(Turn Over)

Or

Describe the different sources of chromosomal anomalies. 7

3. Briefly describe the following : $3\frac{1}{2} \times 2 = 7$

- (a) Cytoplasmic male sterility
- (b) Plastid inheritance in *Mirabilis jalapa*

Or

What do you mean by mapping of genes on chromosomes? Discuss the different types of maps. $2+5=7$

4. Write short notes on the following : $3\frac{1}{2} \times 2 = 7$

- (a) Mass selection
- (b) Theories of hybrid vigour

Or

Describe the different types of physical mutagens and the mechanism of their action. 7

5. Describe briefly the following : $3\frac{1}{2} \times 2 = 7$

- (a) Biological database
- (b) DNA sequence alignment

Or

Give a brief account of BLAST and its variants. 7

2015

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant Breeding and Bioinformatics)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. In pericentric inversion, the inverted segment

(a) does not include the centromere ()

(b) includes the centromere ()

(c) is completely eliminated ()

(d) is duplicated ()

2. A monosomic plant obtained from a plant with 24 chromosomes will have

(a) 22 chromosomes ()

(b) 23 chromosomes ()

(c) 24 chromosomes ()

(d) 25 chromosomes ()

3. Kappa particles in *Paramecium* are endosymbiotic bacteria belonging to the genus

(a) *Enterococcus* ()

(b) *Helicobacter* ()

(c) *Haematobacter* ()

(d) *Caedibacter* ()

4. A strain of an organism that is homozygous because of continued inbreeding is a

(a) hybrid ()

(b) cybrid ()

(c) pure line ()

(d) mutant ()

5. A byte is equal to

(a) 4 bits ()

(b) 8 bits ()

(c) 12 bits ()

(d) 16 bits ()

8. Karyotype

SECTION—B

(Marks : 15)

Write notes on the following :

1. Translocation

2. Segmental polyploidy

3. Karyotype

(a) 4 hrs

(b) 8 hrs

(c) 12 hrs

(d) 16 hrs

3. Karyotype

SECTION - Botany (Biology)

(Marks : 15)

Write notes on the following :

3-5-15

1. Translocation

4. Point mutation

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant Breeding and Bioinformatics)

(PART - A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : (5×5=5)

1. In pericentric inversion, the inverted segment

(a) does not include the centromere ()

(b) includes the centromere ()

(c) is completely eliminated ()

(d) is duplicated ()

5. Significance of bioinformatics

- (a) 22 chromosomes
- (b) 23 chromosomes
- (c) 24 chromosomes
- (d) 25 chromosomes

3. Kappa particles in *Paramecium* are endosymbiotic bacteria belonging to the genus

- (a) *Enterococcus*
- (b) *Helicobacter*
- (c) *Spirillum*
- (d) *Caulobacter*

4. A strain of an organism that is homozygous for a pair of contiguous inverting is a

- (a) hybrid
- (b) cybrid
- (c) pure line
- (d) mutant
