2014

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant Breeding and Bioinformatics)

Full Marks : 55

Time : 2 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The figures in the margin indicate full marks for the questions

1. Write short notes on : 3½×2=7

(a) Deletion

(b) Translocation

Or

Describe the cytoskeletal elements formed in plant cells. 7

2. Give brief notes on : 3½×2=7

(a) Trisomics

(b) Sources of chromosomal anomalies

Or

Define polyploidy. Distinguish between auto-polyploid and allopolyploid. 2+5=7

3. Briefly describe the following : 3½×2=7

(a) Self-sterility in plants

(b) Non-Mendelian inheritance

Or

What is karyotype? Write an account of the concept and components of karyotype. 7

4. Write short notes on the following : 3½×2=7

(a) Chemical mutagens

(b) Molecular basis of mutation

Or

What is hybridization? Describe the technique of hybridization. 7

5. Briefly describe the following : 3½×2=7

(a) Bioinformatics

(b) DNA sequence analysis

Or

Describe different search tools for data-bases with the functions they provide. 7

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(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. Chromosomes with genes ABCDEFGH becoming ABEDCFGH is due to

(a) deletion ( )

(b) duplication ( )

(c) inversion ( )

(d) translocation ( )

2. When there is addition of one or more entire sets of chromosomes, the condition is known as

(a) Euploidy ( )

(b) Aneuploidy ( )

(c) Polyploidy ( )

(d) Duplication ( )

3. Distance on genetic maps are measured in

(a) map unit ( )

(b) physical map ( )

(c) chromosome map ( )

(d) None of the above ( )

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

(a) hybrid ( )

(b) linkage ( )

(c) pure line ( )

(d) crossing-over ( )

5. If a nibble is equal to 4 bits, it is equal to

(a) $\frac{1}{4}$ byte ( )

(b) 1 byte ( )

(c) $\frac{1}{4}$ word ( )

(d) $\frac{1}{2}$ byte ( )

SECTION—B

(*Marks* : 15)

Write brief notes on the following : 3×5=15

1. Chromosome structure

2. Autoallopolyploidy

3. Multiple alleliam

4. Hybrid vigour

8. Biological database

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