2017

(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 any *two* of the following : 3½×2=7

(a) Cytoskeleton

(b) Chemical constituent of chromosome

(c) Duplication

Or

Give an account of the different types of deletion and its consequences. 7

2. Briefly describe any *two* of the following : 3½×2=7

(a) The main sources of chromosomal anomalies

(b) Aneuploidy

(c) Autopolyploidy

Or

Define polyploidy. State the significance of polyploidy. 1+6=7

3. Write short notes on any *two* of the following : 3½×2=7

(a) Cytoplasmic male sterility

(b) Multiple allelism

(c) Enhancer gene

Or

What are kappa particles? Explain the inheritance of such particles in *Paramecium*. 7

4. Briefly describe any *two* of the following : 3½×2=7

(a) Mutagenic mechanism of ionizing radiation

(b) Chemical mutagens

(c) Heterosis

Or

What is hybridization? Describe the techniques involved in hybridization. 2+5=7

5. Write short notes on any *two* of the following : 3½×2=7

(a) Protein database

(b) DNA database

(c) Search tools

Or

Give an account of the various search tools used in bioinformatics. 7

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Subject Code : BOT/V/07

Booklet No. A

Date Stamp .....

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To be filled in by the Candidate

DEGREE 5th Semester
(Arts / Science / Commerce / .....) Exam., **2017**

Subject .....
Paper .....

INSTRUCTIONS TO CANDIDATES

1. **The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.**
2. **This paper should be ANSWERED FIRST and submitted within** *45 minutes* **of the commencement of the Examination.**
3. **While answering the questions of this booklet, any cutting, erasing, over-writing or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.**

To be filled in by the Candidate

DEGREE 5th Semester
(Arts / Science / Commerce / .....) Exam., **2017**

Roll No. .....
Regn. No. .....

Subject .....
Paper .....

Descriptive Type
Booklet No. B .....

Signature of Scrutiniser(s) *Signature of Examiner(s)* *Signature of Invigilator(s)*

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(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. The chromosomes with the centromere in the middle resulting in two equal arms are known as

(a) acrocentric chromosomes ( )

(b) telocentric chromosomes ( )

(c) metacentric chromosomes ( )

(d) sub-metacentric chromosomes ( )

2. The genomic formula $2n-2$ represents a

(a) monosomic chromosome ( )

(b) nullisomic chromosome ( )

(c) trisomic chromosome ( )

(d) tetrasomic chromosome ( )

3. The visual characteristics that identify a particular chromosome set of a species is

(a) genetic maps ( )

(b) genotype ( )

(c) phenotype ( )

(d) karyotype ( )

4. The substitution of a purine with a pyrimidine and vice-versa is a

(a) transition mutation ( )

(b) transversion mutation ( )

(c) frameshift mutation ( )

(d) None of the above ( )

5. The search tool that compares a DNA query against a DNA database is

(a) BLASTN ( )

(b) TBLASTN ( )

(c) BLASTX ( )

(d) BLASTP ( )

SECTION—B

(*Marks* : 15)

Write notes on the following : 3×5=15

1. Inversion

2. Trisomic plants

3. Genetic map

4. Mass selection

5. Significance of bioinformatics

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