

**2015**

**( 6th Semester )**

**BOTANY**

**TWELFTH PAPER**

**( Plant Biotechnology and Experimental Embryology )**

*Full Marks : 55*

*Time : 2½ hours*

**( PART : B—DESCRIPTIVE )**

*( Marks : 35 )*

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

- 1. What is PCR? Describe the various steps of PCR.** 7

*Or*

**Write notes on the following :**

$3\frac{1}{2}+3\frac{1}{2}=7$

- (a) Recombinant DNA**  
**(b) Restriction enzymes**

2. Briefly describe the method of Agrobacterium-mediated gene transformation of plant cell. 7

Or

Write notes on the following :  $3\frac{1}{2}+3\frac{1}{2}=7$

(a) Reporter gene in plants

(b) Gene gun

3. Define cryopreservation. Describe the procedure of cryopreservation. 7

Or

Write notes on the following :  $3\frac{1}{2}+3\frac{1}{2}=7$

(a) Synthetic seeds

(b) Ex-plants

4. Describe the various uses of biotechnological tools in the field of agriculture. 7

Or

Write notes on the following :  $3\frac{1}{2}+3\frac{1}{2}=7$

(a) Plantibodies

(b) Golden rice

5. Write notes on the following :

$3\frac{1}{2}+3\frac{1}{2}=7$

(a) Cybrids

(b) Embryo culture

Or

What is micropropagation? Describe the techniques of micropropagation with illustration.

7

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( 6th Semester )

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TWELFTH PAPER

( **Plant Biotechnology and Experimental Embryology** )

( PART : A—OBJECTIVE )

( Marks : 20 )

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

Answer **all** questions

SECTION—A

( Marks : 5 )

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

(a) In plant tissue culture, filter sterilization is used to sterilize

(i) explants ( )

(ii) instruments ( )

(iii) glasswares ( )

(iv) growth regulators ( )

(b) A circular DNA molecule capable of independent existence and replication is known as

(i) transgene ( )

(ii) antisense gene ( )

(iii) promoter ( )

(iv) vector ( )

(c) The phenomenon in which a somatic plant cell have the capacity to regenerate into whole plant is known as

(i) somatic embryogenesis ( )

(ii) somaclonal variation ( )

(iii) totipotency ( )

(iv) None of the above ( )

(d) Bt cotton is a genetically modified variety of cotton producing

- (i) protein ( )
- (ii) antibodies ( )
- (iii) insecticides ( )
- (iv) None of the above ( )

(e) A cell or plant containing nucleus of one species but cytoplasm from both the parent species is

- (i) cybrid ( )
- (ii) hybrid ( )
- (iii) somatic cell ( )
- (iv) zygotic cell ( )

SECTION—B

( Marks : 15 )

2. Write notes on the following :

3×5=15

(a) Methylase

(b) Protoplast fusion

(c) Organ culture

(d) Cloning vector

( 8 )

(e) Ligases

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