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( 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. Describe the steps involved in recombinant DNA technology. 2+5=7

Or

Write notes on the following : 3½+3½=7

(a) PCR

(b) Methylase

2. Briefly describe the Agrobacterium-mediated gene transformation. 7

Or

Write notes on the following : 3½+3½=7

(a) Transgenic plant production

(b) Reporter gene in plants

3. Define cryopreservation. Briefly describe the procedure of cryopreservation of plants. 2+5=7

Or

Write notes on the following : 3½+3½=7

(a) Synthetic seeds

(b) Sterilization techniques in tissue culture

4. Give an account of genetically modified organisms with special emphasis on Golden Rice. 7

Or

Write notes on the following : 3½+3½=7

(a) Significance of biotechnology in agriculture

(b) Plantibodies

( 3 )

5. What is somatic embryogenesis? Describe the developmental patterns of somatic embryos.  $2+5=7$

*Or*

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

(a) Cybrid

(b) Protoplast fusion

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Subject Code : BOT/VI/12

Booklet No. **A**

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Date Stamp .....

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**To be filled in by the Candidate**

DEGREE 6th Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2017**  
Subject .....  
Paper .....

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**To be filled in by the Candidate**

DEGREE 6th Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2017**  
Roll No. ....  
Regn. No. ....  
Subject .....  
Paper .....  
Descriptive Type  
Booklet No. B .....

**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, overwriting 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.

Signature of  
Scrutiniser(s)

Signature of  
Examiner(s)

Signature of  
Invigilator(s)

**BOT/VI/12**

**2 0 1 7**

( 6th Semester )

**BOTANY**

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) The microorganism known as nature's genetic engineer is

(i) *Bacillus thuringiensis* ( )

(ii) *Bacillus subtilis* ( )

(iii) *Agrobacterium tumefaciens* ( )

(iv) *Erwinia uredovore* ( )

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( 2 )

(b) Transgenic tomato ripe slower due to the antisense gene encoding the enzyme

(i) phytase ( )

(ii) polygalacturonase ( )

(iii) ribozyme ( )

(iv) lipase ( )

(c) The tissue obtained from a plant to be cultured is called

(i) somatic embryo ( )

(ii) protoplast ( )

(iii) cybrid ( )

(iv) explant ( )

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( 3 )

(d) Bt-Cotton is a genetically modified organism which produces

(i) rodenticides ( )

(ii) bactericides ( )

(iii) insecticides ( )

(iv) herbicides ( )

(e) Protoplast culture is done in

(i) MS media ( )

(ii) PDA media ( )

(iii) Beef agar media ( )

(iv) Chu-10 media ( )

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SECTION—B

( Marks : 15 )

2. Write notes on the following :

3×5=15

(a) Ligase

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( 5 )

(b) Gene gun

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( 6 )

(c) Totipotency

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( 7 )

(d) Bt-Brinjal

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( 8 )

(e) Micropropagation

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