

This question paper contains 4 printed pages]

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S. No. of Question Paper : 1690

Unique Paper Code : 216605

C

Name of the Paper : BTHT-612 : Plant Biotechnology

Name of the Course : B.Sc. (H) Botany

Semester : VI

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any *five* questions in *all*.

Question No. 1 is compulsory.

I. (a) Expand the following :

5

(i) FISH

(ii) PAC

(iii) RFLP

(iv) PAGE

(v) SDS.

(b) Match the following :

5

(i) Superbug

(a) Carry Mullis

(ii) PCR

(b) A. M. Chakraborty

P.T.O.

(iii) *Hae* III

(c) E.G. Cocking

(iv) *Hind* III

(d) *Haemophilus aegypticus*

(v) Plant Protoplast

(e) *Haemophilus influenzae* RD

(c) Fill in the blanks :

5

(i) Haploid plants in *Datura innoxia* through anther culture were obtained by the scientist(s).....

(ii) Enzyme which degrades the cell wall of tomato is

(iii) Bt toxin does not kill the bacteria themselves because it is present in.....

(iv) Technique of DNA fingerprinting was developed by

(v) pBR322 was used for the first time by.....

2. Briefly discuss (any three) :

3×5=15

(i) Glyphosate resistant plants with suitable examples;

(ii) *Agrobacterium* mediated transformation;

(iii) Sanger's DNA sequencing method;

(iv) Organogenesis in tissue culture.

3. (a) Define cryopreservation. Describe this technique in detail with examples. 5
- (b) Discuss the advantages and disadvantages of genetically modified plants. Explain the bio-ethical issues related with such plants. 10
4. Write short notes on : $5 \times 3 = 15$
- (i) Androgenesis;
 - (ii) Southern blotting;
 - (iii) *Taq* polymerase;
 - (iv) Cybrids;
 - (v) Golden rice.
5. Differentiate between any *three* with examples : $3 \times 5 = 15$
- (i) Vaccines and edible vaccines;
 - (ii) Cybrid and Hybrid;
 - (iii) Northern blotting and Western blotting;
 - (iv) Plasmid and Phagmid;
 - (v) Cloning vector and Expression vector.

6. (a) Differentiate between microinjection and electroporation technique of gene transfer. 5
- (b) Define plant tissue culture. Describe *five* major applications of plant tissue cultures. 10
7. (a) Define molecular markers. Explain their role in solving biological problems. 5
- (b) Describe and discuss *five* realized applications of plant biotechnology in agriculture. 10