

2013

M.Sc.

3rd Semester Examination

BIOTECHNOLOGY

PAPER—BIT-301

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer all questions.

Group—A

1. Answer any five questions from the following : 2×5
 - (a) State the differences between somatic embryo and zygotic embryo.
 - (b) What do you mean by cis and trans vector?
 - (c) Distinguish between binary and co-integrate vectors.
 - (d) What is cry gene? Mention its importance.
 - (e) What are genetic and epigenetic variation?
 - (f) Mention the functions of BARNASE and BARSTAR.
 - (g) Name the plant genetic engineering technique used for extension of shelf life of fruits.
 - (h) What is hairy root culture? Name the bacterium which induces it.

(Turn Over)

Group—B

2. Answer any *two* questions from the following : 5×2
- (a) Describe the steps involved in cryopreservation of germplasm. State the role of cryoprotectants. 3+2
 - (b) Define molecular farming. State the benefits and risks of molecular farming. 1+4
 - (c) State the methods of organellar (plastid) genetic transformation. Compare chloroplast vs. nuclear transformation. 1+4
 - (d) What is *in vitro* clonal propagation? Mention the different states of *in vitro* clonal propagation and state its significance. 1+2+2

Group—C

3. Answer any *two* questions from the following : 10×2
- (a) What are PR Proteins? Describe the strategies for developing fungal and bacterial resistance plants. 2+4+4
 - (b) What is antisense RNA technology? How is this technology applied in Plant improvement? How antisense technology implied to produce virus resistant plant?
 - (c) How haploid plant develops through tissue culture technique? What are the significances for developing such plants? What is double haploid plant? Cite example. 4+2+2+2
 - (d) Write notes on (any *two*) : 5+5
 - (i) Edible interferous ;
 - (ii) IPR ;
 - (iii) Multiple gene transfer ;
 - (iv) Embryo rescue and its implication in distant hybridization programme.