

**2012**

**M.Sc.**

**3<sup>rd</sup> 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.*

**(Plant Biotechnology)**

**Group—A**

- 1. Answer any five questions from the following :      2×5**
- (a) Define stress including protein.
  - (b) What is biolistic technique ?
  - (c) Distinguish between cybrid and hybrid.
  - (d) Mention two ethical issues related to GM crops.

*(Turn Over)*

- (e) What are the causes of somaclonal variation?
- (f) What are edible vaccines?
- (g) What is callogenesis?
- (h) Name two commercially important secondary metabolites in plants and mention their sources.

**Group—B**

2. Answer any *two* questions from the following :      5×2
- (a) Discuss the steps involved in genetic manipulation for flower pigmentation.  
5
  - (b) Write down the technique for single cell culture and mention the problems associated with this culture.  
3+2
  - (c) Briefly describe the different types of promoters used in plant transformations.  
5
  - (d) What is meant by Cryopreservation technique? State the role of this technique for conservation of germ plasm.  
1+4

**Group—C**

- 3. Answer any two questions from the following : 10×2**
- (a) What is your concept of transgenic plants? Write a comprehensive note on the role of genetic engineering for extended shelf life of fruits.  
3+7
- (b) Mention the properties of Ti Plasmid. Briefly discuss the method of Plant transformation using *Agrobacterium* mediated gene transfer. Construct a binary vector and state its advantages.  
2+5+3
- (c) What is *in vitro* clonal propagation? Briefly discuss the different stages of such propagation. State the method and advantages of hardening process of tissue culture raised plants.  
2+5+4
- (d) Write notes on (any two) : 5+5
- (i) Gene Silencing;
- (ii) Anther and Pollen Culture;
- (iii) Virus resistant plants.
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