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Total Number of Pages: 02

**B.Tech**  
**PCBT4305**

**6<sup>th</sup> Semester Regular / Back Examination 2015-16**

**PLANT BIOTECHNOLOGY**

**BRANCH: BIOTECH**

**Time: 3 Hours**

**Max Marks: 70**

**Q.CODE: W205**

**Answer Question No.1 which is compulsory and any five from the rest.  
The figures in the right hand margin indicate marks.**

- Q1** Answer the following questions: (2 x 10)
- a) What is somaclonal variation?
  - b) Majority of the cereals are highly recalcitrant to *Agrobacterium*-mediated transformation and so direct transformation methods have been developed to transform such plants. Which direct transformation method is applicable to intact plant tissues?
  - c) Write the name of two secondary metabolites of plant origin that is having commercial importance?
  - d) What is the optimum pH range for suitable *in vitro* growth of explant?
  - e) What do you mean by suspension culture? Why suspension culture is used for secondary metabolite production?
  - f) What is surface sterilisation? Write the name of two chemical sterilant used for sterilization of explant?
  - g) What is Embryo rescue? Why it is used?
  - h) What is golden rice? Name the transgene used in the development of golden rice?
  - i) Which gene mediate the transfer of T-DNA from Ti plasmid into plant cell?
  - j) Which transformation technique is most suitable for stable transformation in plants?
- Q2** What are symmetric and asymmetric hybrids? Describe different methods for isolation and purification of protoplast? (10)
- Q3** Write short notes on: (5)
- a) Secondary metabolites from immobilized plant cells. (5)
  - b) Encapsulated seeds (5)
- Q4** Write an essay on different methods used in productions of transgenic plants? (10)
- Q5** a) Give the general features of tissue culture media composition, and discuss the roles of various growth regulators? (5)
- b) Discuss in detail the procedure and applications of micropropagation method. (5)

Q6	Briefly Explain	(5)
210	a) Totipotency	(5)
	b) Herbicide resistant transgenic plants	210
Q7	a) Give a detail account of molecular farming from transgenic plants with emphasis on immunotherapeutic drugs.	(5)
	b) Describe the different genes that have been used for the production of transgenic plants that are insect resistant. Give details of Bt genes(Cry) that have been used for this purpose.	(5)
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Q8	Briefly explain (any two)	(5 x 2)
a)	GURT	210
b)	Classification and biosynthesis of alkaloids	210
c)	Golden rice	210
d)	Single cell culture	210
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