B. Sc. Biotechnology
Fourth Semester
Plant Biotechnology
(BBT- 17)

(The figures in the margin indicate full marks for the questions)

Duration: 3Hrs. **Full Marks: 70**

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins. **Marks: 50**

I. Write short notes on (any five): **2x5=10**

1) Cybrids
2) Vector
3) Haploids
4) Explant sterilisation
5) Ti plasmid
6) Selectable marker
7) Opines

II. Explain in short (any five): **3x5=15**

1) Give a short description of T-DNA.
2) Write a short note on properties of crown gall cells.
3) What are the advantages of anther culture?
4) Distinguish between callus culture and suspension culture.
5) Write a short on sterilization of nutrient medium.
6) Draw the diagram of a bioreactor.
7) Write a short note on organisation of a plant tissue culture laboratory.

III. Explain briefly any five of the following questions: **5x5=25**

1) Write in details about the excision transfer of T-DNA.
2) Describe how the repressor protein regulates the lac operon.
3) Describe the process of anther culture.
4) Describe the process of protoplast fusion.

PTO

5) Describe the molecular strategy involved in Blue/white colony selection.
6) What is a transgenic plant? How is it developed using rDNA technology? Explain with the help of a suitable example.
7) What is somatic embryogenesis? Describe in detail.

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REV-00
BBT/24/30 2014/06

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Duration: 20 minutes **Marks – 20**

(PART A- Objective)

Time: 20 mins **Total Marks: 20**

I. Fill up the blanks: **1x5=5**

a) The father of tissue culture is .....
b) MS medium was developed by .....
c) ..... converts lactose into glucose and galactose.
d) ..... is the ability of an individual cell to develop into a whole plant.
e) The concentration of macronutrients in a suitable tissue culture medium is.....

II. Match the following: **1x15=15**

a) Amp+	a) lactose analog
b) Explant sterilization	b) A. tumefaciens
c) Macronutrient	c) $MgSO_4 . 7H_2O$
d) X-GAL	d) GM crop
e) Micronutrient	e) opine synthesis gene
f) Sparger	f) encapsulation of somatic embryo
g) Nos	g) bioreactor
h) Flavr Savr Tomato	h) protoplast isolation
i) Artificial seeds	i) $FeSO_4 . 7H_2O$
j) Cocking	j) hairy roots
k) Electroporation	k) haploid culture
l) Crown gall	l) diplodisation
m) Endomitosis	m) mercuric chloride
n) A rhizogens	n) selectable marker
o) Gynogenesis	o) direct DNA delivery

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