Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November 2025

23BBTPC35002 – Plant Biotechnology

(Biotechnology)

Time: 3 hrs Maximum: 60 Marks

Answer ALL questions

(The figures in the right-hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Write on batch culture.	CO1	K2
b. State cybridization.	CO2	K4
c. What do you mean by thawing?	CO3	K3
d. Define disease resistance crop.	CO5	K2
e. What is the importance of "elicitors" in plant tissue culture?	CO4	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions		Marks	CO #	Blooms Level
2. a.	Describe the composition of plant tissue culture media and discuss the role of each component.	5	CO1	K2
b.	Write the process of development of callus culture and its applications.	5	CO2	K2
	(OR)			
c.	Discuss various sterilization methods for media, glassware, instruments, and explants.	5	CO3	K2
d.	Write various methods of culture of single cell.	5	CO4	K2
3.a.	Explain the principles and applications of microspore culture in plant biotechnology.	5	CO5	K3
b.	Define micropropagation and elaborate on the different stages involved in the process.	5	CO6	K2
	(OR)			
c.	Write the methods of production of artificial seeds. Add a note on advantages of the technique.	5	CO2	K2
d.	Deliberate the principles and methods of somatic hybridization.	5	CO1	K3
4.a.	Describe the technique of cryopreservation.	5	CO3	K2
b.	Discuss the vector construction and advantages of chloroplast transformation.	5	CO4	K2
	(OR)			
c.	What is molecular pharming? Explain the importance of molecular pharming.	5	CO6	K2
d.	Discuss on types of reactions and cell culture used in biotransformation approach.	5	CO5	K2
5.a.	Describe in detail on *Agrobacterium*-mediated gene transfer system.	5	CO2	K2
b.	Explain the strategies for developing herbicide-resistant crops.	5	CO4	K3
	(OR)			
c.	Discuss two types of direct gene transfer methods used in plant transformation.	5	CO5	K3

d.	Write notes on development of insect resistance crop with example.	5	CO2	K2
6.a.	Describe the classification of secondary metabolites found in plants.	5	CO3	K2
b.	Explain on types of bioreactors used for production of secondary metabolites.	5	CO4	K2
	(OR)			
c.	Write notes on *Flavr Savr* Tomato and its commercial importance.	5	CO5	K2
d.	Discuss on optimization of parameters for production of secondary metabolites.	5	CO6	K2

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