Reg.No.:											

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 9013

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024
Sixth Semester
Biotechnology
U19BT619 – PLANT AND ANIMAL BIOTECHNOLOGY
(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What are synthetic seeds?	2	K1	CO1
2.	List the pathways involved in organogenesis.	2	K2	CO1
3.	Draw the diagram of Ti-plasmid.	2	K2	CO2
4.	Tabulate any four selectable markers used for selection of transgenic plants.	2	K2	CO2
5.	How do you sterilize the plant tissue culture medium?	2	K2	CO3
6.	State the cell culture substrates used in animal cell culture.	2	K1	CO3
7.	Mention any two applications of viral vectors.	2	K1	CO4
8.	List the chemicals used for transient transfection of animal cells.	2	K1	CO4
9.	Probiotics can be used as growth promoters – Justify the statement.	2	K4	CO5
10.	Indicate the mode of action of Bt gene.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Write in detail about micropropagation techniques.	8	K2	CO1

	ii.	Describe the use of bioreactors in plant tissue culture.	5	K2	CO1
		(OR)			
b)	i.	Write in detail about the protoplast culture.	8	K1	CO1
	ii.	How the callus culture can be differentiated into shoots?	5	K3	CO1
12. a)		Write about the Ti plasmid mediated gene transfer in plants.	13	K2	CO2
		(OR)			
b)		Schematically explain the transgenic plant generation by particle bombardment and PEG-mediated transformation.	13	K2	CO2
13. a)		Narrate the steps involved in culturing the animal cells in a tissue culture laboratory.	13	K2	CO3
		(OR)			
b)		List a few recombinant proteins produced from animal cell culture. Describe a detailed protocol for producing any one of those proteins with a flow chart.	13	K2	CO3
14. a)		Portray the significant events in generating lentiviruses for biology research.	13	K2	CO4
		(OR)			
b)		Write a note on adeno-associated virus (AAV) and its use in gene therapy. Describe a method for the construction of AAV with a flow chart.	13	K2	CO4
15. a)		Highlight the genetic engineering approaches for enhancing insect resistance in plants. Explain any one of the approaches in detail.	13	K2	CO5
		(OR)			
b)		Exemplify manipulation of wool growth in animals, with a neat sketch.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16. a)		A biotech company wants to produce human growth hormone as a recombinant protein. What are the possible approaches, and how will they be able to scale up the process? Define the approach with a vector diagram. Also, describe a detailed plan for bulk production from research to the development stage.	15	K5	CO5
		(OR)			
b)		You are assigned the job of regenerating a plant from the leaf. How will you approach the problem? Explain the steps involved in this process, with a flow chart.	15	K5	CO2