

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2023 – 2024)

B. Sc. DEGREE EXAMINATION, APRIL 2026
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR – CORE
PAPER : PLANT BIOTECHNOLOGY
SUBJECT CODE : 23BT/MC/PB64
TIME : 3 HOURS **MAX. MARKS: 100**

Q. No.	SECTION A CHOOSE THE CORRECT ANSWER (5 X 1 =5)	CO	KL
1.	The typical Plant genome with 5×10^9 base pairs of DNAs would be about meters long. a) Two b) three c) four d) five	1	1
2.	Formation of cell wall during protoplast regeneration requires a) Galactose b) Lactose c) Maltose d) Sucrose	1	1
3.	The separation technique that uses the charge of the biomolecules for separation is called a) Ligation b) Electrophoresis c) Electroporation d) Blotting	1	1
4.	The production of protein from mRNA is called a) Transcription b) Translation c) Post transcription d) Post translation	1	1
5.	Name the molecular marker used for crop improvement a) RLFP b) RPAD c) RFLP d) RPDA	1	1
6.	FILL IN THE BLANKS. (5 X 1 =5) The ability of a plant cell to regenerate into a whole plant is called _____.	CO 1	KL 1
7.	The presence of _____ in golden rice gives the yellow colour.	1	1
8.	The ethical concerns in biotechnology refers to _____.	1	1
9.	The technique of injecting DNA or RNA into the cell with the help of micropipette is called _____.	1	1
10.	The protein crystals of <i>B.thuringiensis</i> contain toxic _____ protein.	1	1
11.	STATE WHETHER TRUE OR FALSE. (5 X 1 = 5) <i>Bt</i> cotton is a mutated plant.	CO 1	KL 1
12.	Dedifferentiation is the process where a differentiated cell reverts to a meristematic state.	1	1
13.	Haploid plants are produced during the Anther culture.	1	1
14.	Hairy root disease is caused by virus.	1	1
15.	The enzyme used in DNA ligation is nuclease.	1	1
16.	MATCH THE FOLLOWING. (5 X 1 =5) Totipotency - Banana	CO 1	KL 1
17.	Histones - <i>E.coli</i>	1	1
18.	pUC 18 - Biolistics	1	1
19.	Food Vaccine - Callus	1	1
20.	Microprojectile - Nucleosome	1	1

SECTION B (8 X 2 =16)		CO	KL
Q. No.	ANSWER ANY EIGHT OF THE FOLLOWING IN 50 WORDS.		
21.	What are edible vaccines?	2	2
22.	Define Bioethics.	2	2
23.	Outline the structure of Ti plasmid.	2	2
24.	Differentiate Exon and Intron	2	2
25.	What is Autoradiography?	2	2
26.	Explain annealing in PCR.	2	2
27.	Write the importance of PEG.	2	2
28.	Define Cybrid.	2	2
29.	Recall the steps involved in post-translation modification.	2	2
30.	List any two applications of haploids.	2	2
SECTION C (4 X 6 =24)		CO	KL
Q. No	ANSWER THE FOLLOWING IN 200 WORDS.		
31.	Explain the steps involved in production of synthetic seeds.	3	3
	(or)		
32.	Demonstrate the process of Somaclonal Variation.	3	3
33.	Categorize the different types of Restriction Endonucleases.	3	3
	(or)		
34.	Illustrate chloroplast genome.	3	3
35.	Explicate the DNA sequencing using Sanger's method.	4	4
	(or)		
36.	Analyze the cloning vector BAC.	4	4
37.	List the application of Plant Tissue Culture.	4	4
	(or)		
38.	Explain the gene transfer mechanism using particle bombardment technique.	4	4
SECTION D (2 x 20 = 40)		CO	KL
Q. No.	ANSWER THE FOLLOWING IN 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY.		
39.	Summarise the isolation, culturing and fusion of Protoplast.	5	5
	(or)		
40.	Discuss the Plant Genome Organization.	5	5
41.	Elaborate the mechanism of gene transfer using <i>Agrobacterium</i> .	5	5
	(or)		
42.	Elucidate the role of biotechnology for obtaining insect resistant plant.	5	5
