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

M. Sc. DEGREE EXAMINATION, APRIL 2026
BIOTECHNOLOGY
SECOND SEMESTER

COURSE : CORE
PAPER : ANIMAL AND PLANT BIOTECHNOLOGY
SUBJECT CODE : 23BY/PC/AP24
TIME : 3 HOURS MAX. MARKS: 100

Q. No.	SECTION A (10 x 1 = 10 marks) **Answer ALL Questions**	CO	KL
1	Instrument used to ensure aseptic conditions for cell culture is _____	1	1
2	The function of trypsin in cell culture lab is for _____	1	1
3	Cryoprotectant most commonly used to prevent ice crystal formation during cell freezing is _____	1	1
4	First immortalized human cell line created in 1951 from cervical cancer cells is _____	1	1
5	Technique used to study gene expression is _____	1	1
6	Somatic embryos are called bipolar because they have _____	1	1
7	Haploid plants can produce diploid plantlets through plant tissue culture. True or False.	1	1
8	Mention any one selectable marker used in genetic transformation of food crops.	1	1
9	Which nanoparticle is used in gene gun?	1	1
10	Name the hormone which is considered as the primary stress hormone in plants during drought.	1	1
Q. No.	**SECTION B (5 x 2 = 10 marks)** **Answer ALL Questions**	**CO**	**KL**
11	Mention the uses of T-75 flask.	1	2
12	Which instrument is used to measure growth kinetics of animal cell lines?	1	2
13	Define totipotency.	1	2
14	What are reporter genes?	1	2
15	How are salt sensitive plants classified?	1	2
Q. No.	**SECTION C (4 x 10 = 40 marks)** **Answer ALL Questions**	**CO**	**KL**
16	Enumerate on the important types of animal cell culture media. **(OR)** Construct a flow chart to sub-culture an adherent cell line.	2	3
17	Explain the sterilization methods and post sterilization handling of animal cell culture media. **(OR)** Outline the steps involved in establishment of a primary culture.	2	3
18	Demonstrate protoplast isolation. **(OR)** List out the basic requirements for developing a plant tissue culture laboratory.	3	4
19	Differentiate selectable markers and visual markers. **(OR)** With an illustration explain the beta carotene pathway in golden rice.	3	4

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Q. No.	SECTION – D (2 x 20 = 40 marks) **Answer ALL Questions**	CO	KL
20	Justify the statement that transgenic animals are beneficial for human as disease models. **(OR)** Discuss about *in vitro* fertilization adding a note on its challenges.	4	5
21	Elaborate on *Agrobacterium* mediated gene transfer technology with an illustration. **(OR)** Discuss the environmental impact of Bt crops.	5	6

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