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

M. Sc. DEGREE EXAMINATION - NOVEMBER 2023
BIOTECHNOLOGY
FIRST SEMESTER

COURSE : CORE
PAPER : MOLECULAR BIOLOGY AND RECOMBINANT DNA TECHNOLOGY
SUBJECT CODE : 23BY/PC/MR14
TIME : 3 HOURS **MAX. MARKS: 100**

Q. No.	SECTION A Answer ALL Questions (10 x 1 = 10 marks)	CO	KL
1	Tell the locomotory organelle of bacteria.	1	1
2	Identify the power house of eukaryotic cell.	1	1
3	Show how T-T dimers formed.	1	1
4	Recall cell-cell communication.	1	1
5	Define operon.	1	1
6	Write on base excision.	1	1
7	List 2 enzymes used in rDNA technology.	1	1
8	Find the role of restriction endonuclease.	1	1
9	Identify the primer requirements.	1	1
10	Describe the role of western blotting.	1	1
Q. No.	**SECTION – B** **Answer ALL Questions (5 x 2 = 10 marks)**	**CO**	**KL**
11	Illustrate prokaryotic cell and label it.	1	2
12	Explain the role of DNA gyrase.	1	2
13	Interpret the role of H2A and H2B.	1	2
14	Discuss isoschizomers.	1	2
15	Explain RFLP in short.	1	2
Q. No.	**SECTION C** **Answer ALL Questions (4 x 10 = 40 marks)**	**CO**	**KL**
16a 16b	Compile the processes occurring in active transport. **(or)** Predict the structure and function of microtubules.	2	3
17a 17b	Classify the types of DNA repair mechanism. **(or)** Compute the role of different enzymes in cell regulation.	2	3

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18a 18b	Outline the regulation of *trp* operon. **(or)** Distinguish between the types of apoptosis.	3	4
19a 19b	Investigate CRISPR as an important technology. **(or)** Categorize the types of Cancer.	3	4
Q. No.	**SECTION – D** **Answer ALL Questions (2 x 20 = 40 marks)**	**CO**	**KL**
20a 20b	Estimate the importance of molecular markers and its application. **(or)** Critically analyze the Gene Therapy and its application.	4	5
21a 21b	Construct a note on Genomic and cDNA library construction. **(or)** Generate a note on protein synthesis in eukaryotes.	5	6

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