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School of Engineering Sciences and Technology, New Delhi, 110062
MSCB – 3rd Semester (2nd Year)

Paper Name : Biology for Bioinformatics
Time : 2 Hours & 30 Minutes

Paper Code : MCSB 102
Maximum Marks : 60

Section A

Answer all questions (4x5= 20 Marks)

S.No	Questions	CO	BL
1.	How extrachromosomal circular DNA is formed in human cancer cells?	1,2	2
2.	What are the applications of bacterial plasmids?	2,3	5
3.	What is CRISPR-Cas9? How is it useful in changing the genome of any organism?	4	5
4.	What processes are involved in recombinant DNA technology?	3	4

Section B

Answer any four questions. (4x10=40 Marks)

S.No	Questions	CO	BL
1.	Provide the research approach that will be used after obtaining the sequence of the Mpox (Monkeypox) virus.	2,3	3
2.	What is the mechanism by which Small non-coding RNAs help in gene silencing at post-transcriptional level?	2,3	4
3.	What are the mechanisms of mutagenesis DNA replication in the presence of DNA damage?	3,4	5
4.	How mitochondrial genes participate in oxidative phosphorylation and protein synthesis?	2,3	3
5.	What is operon regulation of gene expression in prokaryotes?	2,3	4
6.	What are the types of post-translational modifications and explain any one in detail?	3,4	5