

Roll No: _____

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M.Sc. Biochemistry, Semester-I Examination-2023

Paper Title: Molecular Biology-1

Paper Code: MBC-106

Time: 1.5 hour

Max Marks: 37

Note: This paper has 3 sections A, B, and C, Attempt all the three sections.

Section A: Answer all the questions; Section B: Answer any 1 out of 2; Section C: Answer all the questions, each question has an internal choice.

Abbreviations Used

CLO- Course Learning Outcome, PLO- Program Learning Outcome, BTL- Blooms Taxonomy Level: BT level 1- Remember; BT level 2- Understand; BT level 3- Apply; BT level 4-Analyse; BT level 5-Evaluate; BT level 6-create

Section A (Attempt all questions)

(1X7=7 Marks)

Fill the blanks in appropriate terms.

Q. No	Questions	BTL	CLO	PLO
A	RNase P isthe cleaves extra sequences fromRNA.	1	4	3
B	 resolves the catenane structure after <i>E. coli</i> replication.	2	4	3
C	GATC sites at the oriC of <i>E. coli</i> participates in.....	5	3	2
D	Example of template independent polymerase is.....	1	2	3
E	At a replisome complex, DNA polymerase exists as aform.	4	2	2
F	High humidity DNA primarily hasform of DNA.	1	1	3
G	In Griffith's classical experiment,was assayed for establishing the hypothesis/proving the experimental design.	5	1	3

SECTION B: Long type Questions (Attempt ANY ONE out of TWO)

(1X15=15 Marks)

Q. No	Questions (Any One)	BTL	CLO	PLO
1	Discuss the role of enzymes involved in the DNA replication. Why replication happens towards 3' direction only.	3	1	3
2	Explain the different stages of prokaryotic transcription. Analyse the role of regulatory regions in <i>E. coli</i> transcription with example of Lac operon.	4	2	2

SECTION C: Short-type Questions. (Attempt all questions, each question has an internal choice)
(5X7=35 Marks)

Q. No	Questions	BTL	CLO	PLO
1	Explain semi-discontinuous replication with examples of experiment of Okazaki on bacteriophage. OR Detail the experimental design to prove the semiconservative replication	4	4	2
2	What are the topological problems of replication. Also, how replication of linear DNA is different from circular DNA. OR Discuss the common mechanism of transcription inhibition with examples.	4	3	3
3	Explain the mechanism of 5' and 3' end modification of mRNA. OR Discuss about alternative splicing and its effects in cells.	4	3	3
