Roll No:

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M.Sc. Biochemistry, Semester-1 Examination-2023

Paper Title: BIOCHEMICAL AND BIOPHYSICAL TECHNIQUES
Paper Code: MBC-105

Time: 3 hour **Max Marks: 60**

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 2 out of 4; Section C: Answer all the questions, each question has an internal choice

Abbreviations Used
CLO- Course Learning Outcome, PLO- Program Learning Outcome, BTL- Bloom 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) (1X10=10 Marks)

Q. No	Questions	BTL	CLO	PLO
a	In spectroscopy, ... technique changes only the electronic states of molecules while ..... technique changes both the vibrational and rotational states of molecules.	4	1	3
b	Absorbance of 1 corresponds to ..... % transmittance.	1	1	3
c	If an analyte spent four times as long in the stationary phase as the mobile phase, its retention factor, k would be equal to	3	2	2
d	In X-ray diffraction, Bragg's law equation is	1	1	3
e	..... enzyme is used as a sub-cellular biomarker for cytosol.	1	3	3
f	..... and ..... is a pair of isotope used in dual labelling experiments.	2	5	3
g	Less energetic ..... isotope is suitable for location within tissues.	5	4	2
h	Transfer of proteins from the gel to a nitrocellulose membrane is called as	2	3	3
i	..... is the unit of radioactivity	1	5	3
j	In quantifying differential protein expression, ICAT stands for	1	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

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