

Roll No:

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M.Sc. Biochemistry, Semester-I Examination-2023
Paper Title: Cell Biology. Paper Code: MBC-102

Time: 3 hours

Max Marks: 75

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 any five questions

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
1.	Define cytosol?	1	1	3
2.	What is SNARE?	1	2	3
3.	How catalase move from the cytosol to its organelle and why?	3	3	2
4.	Why biological membranes are composed of only specific type of lipids	4	4	3
5.	Which substance can both increase and decrease the membrane fluidity.	5	5	2
6.	Which organelle can be described to have six compartments?	1	1	3
7.	How does the Patch clamp technique help understand a specific cell function?	2	2	3
8.	How does the membrane controls/ maintain membrane potential?	3	3	3
9.	BiP helps regulate a specific cell function. What is it?	4	4	3
10.	What are Bcl-2 family of proteins?	5	5	3

SECTION B: Long type Questions (Attempt any two out of four)

(2X15=30 Marks)

Q. No	Questions (Any Two)	BTL	CLO	PLO
1	Describe the functions of a plant cell wall.	1	2	3
2	Provide a mechanistic explanation for the opening and closing of stomata	2	3	2
3	Signal hypothesis and synthesis of integral membrane proteins.	4	4	3
4	Use schematics to give a detailed account of the signal transduction mediated by RTK	5	5	2

SECTION C: Short-type Questions. (Attempt any Five questions)**(5X7=35 Marks)**

Q. No	Questions (Any Five Questions)	BTL	CLO	PLO
1	Isolation of lysosome from a cell or tissue lysate	1	1	3
2	Principles of the fluorescence activated cell sorter technique	2	3	3
3	Cytoskeletal elements and the basic structure of each.	2	2	2
4	Stem cell	3	1	3
5	Mathematical expression to understand the resolving power of a microscope	4	2	3
6	Shortcomings of the Davson–Danielli model of membrane structure	4	3	3
7	Phase transition and membrane permeability.	5	4	3
8	Role of mitochondria in apoptosis	5	5	2
9	Structure of the GPCR and its correlation with specific cell function.	5	5	3
10	Transport of small molecules and ions across a membrane.	4	4	2
