

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION)

CLASS: BTECH  
BRANCH: BIOTECHNOLOGY

SEMESTER : III/ADD  
SESSION : MO/2025

SUBJECT: BE24241 CELLULAR DYNAMICS AND MOLECULAR BIOLOGY

TIME: 02 Hours

FULL MARKS: 25

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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Q.1(a)	Diagrammatically explain the differences between prokaryotic and eukaryotic cells.	[2] 3	5
Q.1(b)	Describe the structural organization and functional importance of plasma membrane.	[3] 1	4
Q.2(a)	Evaluate the importance of freeze -fracture technique towards the study of intramembrane structures.	[2] 2	5
Q.2(b)	Diagrammatically describe the nucleus and chloroplast as well as explain their importance in plant cells.	[3] 3	6
Q.3(a)	Explain about the principles of cell communication showing the involvement of cell-surface receptors or intracellular receptors.	[2] 4	6
Q.3(b)	Explain the detailed steps of signaling via G-protein linked cell-surface receptors.	[3] 3	5
Q.4(a)	Explain about different forms of intercellular signaling and their importance.	[2] 3	4
Q.4(b)	Explain about the detailed steps involved in signaling via Enzyme linked cell-surface receptors.	[3] 2	6
Q.5(a)	Describe the different forms of target cell adaptation during chronic cell Injury.	[2] 2	5
Q.5(b)	Describe the importance of the variations taking place during the different phases of cell cycle.	[3] 4	4

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