BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2025)

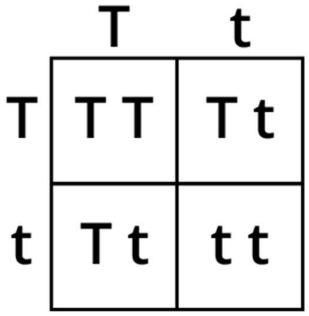
CLASS: BTECH **SEMESTER : II/ADD**
BRANCH: CSE/AIML/ECE/EEE **SESSION : SP/2025**

SUBJECT: BE24101 BIOLOGICAL SCIENCE FOR ENGINEERS

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**

			CO	BL
Q.1(a)	Define the cell theory and state its seven fundamental principles.	[2]	1	2
Q.1(b)	Draw a schematic diagram of Bioreactor. Describe any three major applications of bioreactor in Biotechnology.	[3]	2	3
Q.2(a)	Describe functions of mitochondria and chloroplast in eukaryotic cells.	[2]	2	2
Q.2(b)	Explain the significance of the Miller-Urey experiment in understanding the origin of life.	[3]	2	4
Q.3(a)	List the key steps involved in the Central Dogma of Molecular Biology.	[2]	2	1
Q.3(b)	Compare prokaryotic and eukaryotic cells in terms of structure and function.	[3]	2	3
Q.4(a)	DNA consists of four alphabets (nucleotide bases), while proteins are made up of twenty alphabets (different amino acids). Explain how genetic information flow from DNA to protein.	[2]	2	4
Q.4(b)	Evaluate the advantages and ethical concerns of genome editing technology.	[3]	2	6
Q.5(a)	Explain the steps involved in recombinant DNA technology and mention its applications.	[2]	5	3
Q.5(b)	If the total number of seed obtained after a monohybrid cross between a Tall (TT) and dwarf (tt) plants is 100. Find the possible number of tall plant and dwarf plants. The punnett square for the monohybrid cross is given below. “T” stands for tall plant and “t” stands for dwarf plant.	[3]	4	4



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