

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

CLASS: B.TECH
BRANCH: BIOTECH

SEMESTER : V
SESSION : MO/2025

SUBJECT: BE317 STEM CELLS & TISSUE ENGINEERING

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)	Define stem cells?	[2]	CO	BL
Q.1(b)	Classify stem cells based on potency and briefly explain each category with examples?	[3]	CO1	BL1
			CO1	BL2
Q.2(a)	Define Perinatal stem cells?	[2]	CO1	BL1
Q.2(b)	Explain cancer stem cells and give their salient characteristics.	[3]	CO1	BL2
Q.3(a)	Define iPSCs?	[2]	CO1	BL1
Q.3(b)	Explain the process of generating iPSCs for application in cell-based therapies? Give a neat sketch representing the process flow.	[3]	CO1,2	BL2,3
Q.4(a)	Define Stem cell culture media?	[2]	CO1,2	BL1
Q.4(b)	Describe the components of stem cell culture media with their role?	[3]	CO1,2	BL2
Q.5(a)	Explain the term feeder layer and its importance of stem cell culture?	[2]	CO1	BL2
Q.5(b)	Briefly describe the adherent monolayer stem cell culturing method with their advantages and limitations?	[3]	CO1,2	BL2

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