

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

CLASS: BTECH
BRANCH: BIOTECHNOLOGY

SEMESTER : VII
SESSION : MO/2025

SUBJECT: BE402 BIOREACTOR AND BIOPROCESS DESIGN

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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		CO	BL
Q.1(a)	What are the key features involved in bioreactor	[2] 1	1
Q.1(b)	Draw a bioreactor with all components and describe the role of baffle.	[3] 1	1
Q.2(a)	How wave bioreactor operates?	[2] 2	1
Q.2(b)	Describe the different flow patterns generated due to agitator, with diagram.	[3] 2	2
Q.3(a)	What is the difference between pipe and tube?	[2] 1	2
Q.3(b)	Define schedule no, pipe ID no and NPS of pipe.	[3] 2	2
Q.4(a)	What is the requirement of sparger in bioreactor?	[2] 1	2
Q.4(b)	Draw and describe the oxygen transfer in bioreactor.	[3] 2	2
Q.5(a)	What are the safety issues taken during the run time of bioreactor.	[2] 2	2
Q.5(b)	What is Reynolds number and how it is related to Power theory of mixing?	[3] 2	2

:::::18/09/2025 :::::M