

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

CLASS: BTECH
BRANCH: CHE

SEMESTER : VIth
SESSION : SP/2025

SUBJECT: CL359 MEMBRANE SCIENCE AND TECHNOLOGY

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)	Explain briefly: what is osmotic pressure and what is reverse osmosis	[3]	1 1
Q.1(b)	Explain with a diagram how polymeric hollow fiber membrane module is fabricated	[2]	3 1
	Define the following terms		
Q.2(a)	Membrane permeability and write its unit	[2]	2 2
Q.2(b)	Real and observed retention	[3]	2 4
Q.3	Using film theory how observed and real retention can be related	[5]	3 3
Q.4(a)	What is concentration polarization	[3]	4 4
Q.4(b)	What is reversible and irreversible fouling	[2]	4 3
Q.5(a)	State the limitations of film theory and its fundamental differences with boundary layer theory	[3]	3 3
Q.5(b)	What is reverse osmosis and what are the characteristics (pore size; molecular weight cutoff etc.) of UF and NF membranes.	[2]	5 5

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