


Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Course: Advance Separation Techniques	Semester : VI
Program: B. Tech. CERP	Time : 3 hr
Course Code: CHCE 3035P	Max. Marks : 100

Instructions: Assume any missing data. The notations used here have the usual meanings. Draw the diagrams, wherever necessary.

SECTION - A (5 × 4 = 20 marks)
(Answer all the questions)

S. No.		Marks	CO
1.	List the advantages of membrane separation process over other conventional separation technologies.	4	CO1
2.	Differentiate between cross-flow and dead-end filtration.	4	CO1
3.	What are the applications of immunochromatography?	4	CO2
4.	Explain the use of lyophilization in chemical engineering.	4	CO3
5.	Discuss the mechanism of super critical fluid extraction.	4	CO3

SECTION - B (4 × 10 = 40 marks)
(Answer all the questions)

S. No.		Marks	CO
6.	Explain the desalination of water using reverse osmosis membrane with the help of a neat diagram.	10	CO2
7.	Discuss the sol-gel peptization method for the preparation of ceramic membranes.	10	CO2
8.	What are the applications of dehumidification? List the different methods used to achieve dehumidification.	10	CO1
9.	Describe the methods used to reduce concentration polarization in ultrafiltration process.	10	CO3

SECTION - C (2 × 20 = 40 marks)
(Answer all the questions)

10.(a)	Explain the two forms of electrophoresis with the help of diagrams.	12	CO3
(b)	Differentiate between electrophoretic and electroosmotic mobility.	8	
11.(a)	State the principle of affinity chromatography. Explain the functions of components involved in affinity chromatography.	12	CO2
(b)	Discuss the techniques used for controlling and managing oil spills.	8	