

No. of Printed Pages : 03

Roll No.

855

B. Tech. EXAMINATION, May 2017

(Eighth Semester)

(Old Scheme) (Re-appear Only)

(CHE)

CHE-452

NOVEL SEPARATION TECHNIQUES

Time : 3 Hours]

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks. make suitable assumption wherever necessary. Assume any missing data.

(3-33/18)M-855

P.T.O.

1. (a) What are different separation processes in chemical and biochemical industries ?
10
(b) What is rate governed processes ? Explain in detail. 10
2. Describe the process of bubbles and foams formation. 20
3. (a) What are various physical characteristics of membranes ? 10
(b) Explain concentration polarization in detail with the help of neat and clean diagram. 10
4. How various types of membranes can be manufactured ? Explain various methods in detail. 20
5. What is critical extraction ? What are the application of critical extraction ? Discuss. 20
6. What are various types of adsorption isotherms ? Explain in detail. 20

7. (a) What is Adsorption hysteresis ? Explain. 6
(b) How pervaporation is different from other membrane processes ? Explain pervaporation process in detail along with its application, advantages and disadvantages. 14
8. Write short notes on the following : $5 \times 4 = 20$
 - (a) Reverse osmosis
 - (b) Electrodialysis
 - (c) Adsorption hysteresis
 - (d) Freeze drying.