

2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

IV B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS  
**MEMBRANE TECHNOLOGY**  
(CHEMICAL ENGINEERING)

APR/MAY 2006

TIME - 3 HOUR  
MARK - 80

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**Answer any FIVE Questions**  
**All Questions carry equal marks**

1. Explain the process of Ion exchange with at least two applications. What is the membrane process which can be used as an alternative to Ion exchange process. [16]
2. Write a brief note on Ultra filtration in enzyme processing. [16]
3. Discuss on the membranes used for Ultra filtration. [16]
4. What is critical Miscell concentration? Explain water in oil emulsion and oil in water emulsion with the help of a neat sketch. [16]
5. What are the different flow patterns employed in continuous dialysers, Explain with the help of a neat sketch. [16]
6. (a) What is the difference between brackish water and sea water?  
(b) What is pretreatment required for sea water to be treated by electro dialysis?  
(c) Explain the conventional methods that could be employed for the treatment of sea water. [4+6+6]
7. What is the effect of operating parameters like pressure, temperature, concentration, flow rate on Reverse Osmosis? [16]
8. Oxygen and nitrogen can be separated from air by gas permeation. Explain