M.Tech. First Year First Semester (Chemical Technology) (Membrane & Separation Technology) (F.T.)

13024 : Membrane Separation Process : 1 MST 2

P. Pages : 1

Time : Three Hours

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AW - 3436

Max. Marks : 80

Notes : 1. Answer **any six** questions.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Diagrams and Chemicals equations should be given wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.
6. Discuss the reaction, mechanism wherever necessary.
7. Use of pen Blue/Black ink/refill only for writing the answer book.

1. What do you mean by Physico-chemical criteria of membrane process? Explain in details with same example. **13**

2. Discuss the membrane transport and separation mechanism with basic transport equation and solute transport parameters. **13**

3. How membrane can help in gas separation process? Derive expressions for x_p, x_o ; θ, x_{oM}. **13**

4. How will you compare the performance of membrane separation processes and conventional separation processes? Explain with suitable example. **13**

5. How pervaporation differs from reverse osmosis and discuss its salient features in alcohol concentration. **14**

6. What are membrane bioreactors? Explain their salient features and performance evaluation. **13**

7. Discuss in details the reverse osmosis treatment of non aqueous solutions in liquid phase. **13**

8. What is integrity of membrane and discuss in details the bubble point and air diffusion test in details. **13**

9. How separation can be performed by liquid membranes? Discuss in details with suitable examples. **13**

10. What is membrane distillation and how to evaluate the performance of membrane distillation along with applications. **14**

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