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DHH-003-011202 Seat No. _____

M. Sc. (Sem. - II) (CBCS) Examination

May / June – 2015

Industrial Chemistry : IC - 202

(Emerging Technologies in Chemical Industries)

Faculty Code : 003
Subject Code : 011202

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions:

1) All Questions are compulsory.
2) Each question carries 14 marks.
3) Assume suitable data wherever necessary.

Q1] Answer any seven out of the following: **14**

1) Define Membrane and enlist various pressures driven membrane processes.
2) Enlist types of Synthetic membrane process.
3) Define Microfiltration and enlist its two types based on feed flow.
4) Explain Single Walled Carbon Nanotube.
5) Write the applications of Diffusion dialysis.
6) What is Hard Nanoparticle?
7) Explain physical properties of Nanoparticles.
8) Explain one dimensional (1-D) nanoparticle.
9) Discuss applications of Liquid Membrane.
10) Discuss R.O. for Non aqueous System.

Q2] Answer any two from the following: **14**

1) Explain separation of VOCs from water by Pervaporation process with schematic diagram.
2) Explain Micellar-Enhanced UF in detail.
3) Explain desalination of brackish water with the help of R.O. process.

Q3] Answer the following: **14**

1) Enlist four primary manufacturing methods of nanoparticles from polymer. Explain any two in detail.
2) Explain bulk liquid membrane in membrane.

OR

Q3] Answer the following: **14**

1) Enlist and discuss Parameters affecting the performance of NF.
2) Write a brief note on Transmission Electron Microscope (TEM) with appropriate diagram.

Q4] Answer any two from the following: **14**

1) Explain the following Liquid Membranes.
   i) Thin sheet Supported Membrane ii) Hollow Fiber Membrane
2) Explain in detail. Photon Correlation Spectroscopy (PCS).
3) Explain dehydration of alcohol with the help of Pervaporation.

Q5] Answer any two from the following: **14**

1) What is the basic Principle of MF? Discuss its Mechanism of transport in detail.
2) Enlist various applications of Electron Microscope in detail.
3) Write a brief note on classification of Nanoparticles.
4) Enlist and discuss Parameters affecting the performance of MF.