

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous)

Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION APRIL – 2017

M. Sc. Industrial Chemistry

16PICCC07 – TECHNOLOGIES IN CHEMICAL INDUSTRIES

Duration of Exam – 3 hrs

Semester – II

Max. Marks – 70

Part A (5x2= 10 marks)

Answer **ALL** questions

- 1 Enlist any four potential uses of Carbon nanotubes.
- 2 Give basic principle of membrane separation process.
- 3 What is the difference between tortuous pore membrane and capillary pore membrane?
- 4 Define pesticides.
- 5 What is the size range of laboratory fermentors and pilot plant fermentors?

Part B (5X5 = 25 marks)

Answer **ALL** questions

- 6a Describe Emulsion-Solvent Evaporation Method for manufacture of nanoparticles from preformed polymer.

OR

- 6b Describe physical properties of nanoparticles.

- 7a Write brief note on desalination process of brackish water. (Draw diagram if necessary)

OR

- 7b Write a short note on advantages of Reverse Osmosis (RO).

- 8a Explain basic principle of ultrafiltration in detail.

OR

- 8b Describe principle of dialysis and draw a schematic diagram of transport through a dialysis membrane.

- 9a Write a short note on Attractants and Repellents.

OR

- 9b What are herbicides? Explain in detail with appropriate method of applications and examples.

- 10a What are the factors involved in fermentor design? Enlist any five.

OR

- 10b Draw only diagram of fermentation vessel.

Part C (5X7 = 35 marks)

Answer **ALL** questions

11a Write detailed note on Scanning Electron Microscope (SEM).

OR

11b Draw a schematic diagram of Dynamic Light Scattering (DLS) and discuss it in detail.

12a Write detailed note on process limitations in Nano-filtration (NF) process.

OR

12b Enlist various operating parameters in RO and discuss each parameter briefly.

13a Draw a schematic diagram of the treatment of oily waste water by ultrafiltration and explain in detail.

OR

13b Draw schematic representation of hemodialysis and write detailed note on Hemodialysis.

14a Write a detailed note on manufacturing process of 2,4-D (2,4-Dichlorophenoxy Acetic acid) with appropriate diagram and reaction process.

OR

14b Explain plant growth regulator in detail.

15a Explain in detail single stage fermentation for the production of beer with appropriate schematic diagram.

OR

15b Write a detailed note on fermentor configurations.
