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Question Paper Code: 58971

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

One credit course

Computer Science Engineering

15UCH871 - MEMBRANE TECHNOLOGY

(Regulation 2015)

Duration: 1.30 hours

Maximum: 50 Marks

PART A - (10 x 1 = 10 Marks)

1. In the early development stage membrane suffered from drawbacks like CO1- R
(a) Too unreliable (b) too slow (c) too unselective (d) all of the above
2. Microporous membranes has pore size of CO1- R
(a) 1-10 μ m dia (b) 0.01-10 μ m dia (c) 100-1000 μ m dia (d) 50-100 μ m dia
3. _____membranes are being considered for the separation of hydrogen from gas mixtures. CO1- R
(a) zirconium (b) palladium (c) nickel (d) both (a) and (c)
4. Polymers which cannot be processed by solution casting are CO1 -R
(a) polyethylene and nylon (b) polystyrene
(c) both (a) and (b) (d) none of the above
5. Casting solution solvents are CO1 -R
(a) benzene (b) acetone (c) dimethyl formamide (d) ethyl formate
6. Microfiltration membranes filter _____ from 0.1 to 10 μ m CO2 -R
(a) salts (b) influenza virus
(c) sucrose (d) colloidal particles and bacteria

7. Loeb-Sourirajan synthesized membranes by CO2 -R
- (a) thermal gelation (b) solvent evaporation
(c) water precipitation (d) water vapor absorption
8. A 40 inch long spiral wound modules with a module diameter of 4 will have CO2- R
an area of _____ m²
- (a) 6 -12 (b) 3-6 (c) 20-40 (d) 80-150
9. Microfiltration membranes filter _____ from 0.1 to 10 μm CO2 -R
- (a) salts (b) influenza virus
(c) sucrose (d) colloidal particles and bacteria
10. In hollow fiber modules the fiber has small dia of _____ internal dia and CO2 -R
_____ Outer diameter to withstand hydrostatic pressure.
- (a) 2 μm and 10-50 μm (b) 50 μm and 100-200 μm
(c) 10 μm and 50-70 μm (d) 20 μm and 10-100 μm

PART – B (5 x 2= 10Marks)

11. What is meant by membrane technology? CO1- R
12. What are membranes? Give some examples. CO1 -R
13. What are the materials by which membranes are made? CO1- R
14. What do you understand by pervaporation process? CO2 -R
15. How membranes are used in control drug delivery? CO2 -R

PART – C (2 x 15= 30Marks)

16. (a) Discuss in detail the principle and working of membranes and elaborate CO1 -U (15)
the various types of membranes with neat diagram
- Or
- (b) Explain in detail the solution diffusion model and pore flow model by CO1- U (15)
which transport mechanism happens in membranes
17. (a) Explain in detail the reverse osmosis process with neat diagram CO2 -U (15)
- Or
- (b) Discuss in detail about the working and application of ultra filtration CO2 -U (15)
membranes.