

## Unit 10 - Week 8 Membranes

### Course outline

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Week 2

Week 3: Cell breakage and Solid-Liquid Separation

Week 4 Solid liquid separation

Week 5 Adsorption

Week 6 Liquid-Liquid Extraction

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Membranes

Membranes

Membranes

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Precipitation and chromatography

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## Assignment 8

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2019-09-25, 23:59 IST.**

1) Concentration polarization is derived using

**1 point**

- Stoke's law
- Newton's law
- Fick's law
- Parkinson's law

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Fick's law

2) Membrane filtration is carried out at a rate of  $1.0 \times 10^{-3}$  cm/sec. The solution concentration is 0.5 wt %. The diffusion coefficient of the solute is  $6.0 \times 10^{-7}$  cm<sup>2</sup>/sec and the boundary layer is  $200 \times 10^{-6}$  cm thick. What will the concentration at the surface of the membrane in the upstream side due to concentration polarization?

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 0.68,0.71

**2 points**

3) Ultrafiltration should be performed

**1 point**

- After nanofiltration
- Before nanofiltration
- Simultaneously together
- Same membranes are used

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Before nanofiltration

4) In ultra filtration, if the retention coefficient is =1, and initial retentate volume and concentration of solute in the retentate are 100 L and 0.1 g/L, what should be the retentate volume to achieve a concentration of solute in the retentate = 0.25 g/L

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 39.5,40.5

**2 points**

5) Two enzymes A and B to be separated by gel electrophoresis and they have mobility of  $-3 \times 10^{-5}$  cm<sup>2</sup>/V sec and  $-1 \times 10^{-5}$  cm<sup>2</sup>/V sec respectively. How long will it take to separate them by a distance of 2 cm if the electric field applied is 3.0 V/cm (answer in mins).

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 555,556

**2 points**

6) Polyvinyl alcohol is used as membranes in pervaporation to separate

**1 point**

- Hydrocarbons
- Water
- Oils
- Vinyl chloride

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Water

7) The charge on Protein A is zero at a pH of 4.0 and the charge on Protein B is zero at a pH of 5.0. So isoelectric pH of protein A

- is greater than that of B
- is less than that of B
- is same as that of B
- is greater by 1.0

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
is less than that of B

**1 point**