Code No: 07A42301 **R07** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
MASS TRANSFER AND SEPARATION
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. How does the concentration gradient for the molar transfer rate differ when expressing the transfer in overall and local transfer coefficients respectively? [16]

2. An ethanol water mixture containing 36% by weight of ethanol is differentially distilled at 1 atm pressure and the mixture is reduced to a maximum ethanol concentration of 6 mol% Determine the composition of the distillate.
   The VLE data: [16]

Mol frac of ethanol in liquid(X)	0.18	0.16	0.14	0.12	0.10
Mole fraction of ethanol in vapor(Y)	0.517	0.502	0.485	0.464	0.438

3. For mass transfer across a phase interface, what is the difference between the film, penetration, and surface-renewal theories, particularly with respect to the dependence on diffusivity? [16]

4. Can absorption be accompanied by a temperature change? Why? What is the difference between physical absorption and chemical (reactive) absorption? [16]

5. Write short note on :
   (a) fixed bed leaching
   (b) Moving bed leaching with neat diagrams. [16]

6. Write notes on:
   (a) Adsorption wave and break through curve
   (b) Pressure solving and thermal solving methods, BET Isotherm. [8+8]

7. What is dialysis and what are the different equipment available for dialysis and explain in detail about Hemodialysis in Artificial Kidney? [16]

8. Distinguish between Eddy and Molecular Diffusion? [16]

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Code No: 07A42301 **R07** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
MASS TRANSFER AND SEPARATION
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Write short note on :
   (a) fixed bed leaching
   (b) Moving bed leaching with neat diagrams. [16]

2. How does the concentration gradient for the molar transfer rate differ when expressing the transfer in overall and local transfer coefficients respectively? [16]

3. Distinguish between Eddy and Molecular Diffusion? [16]

4. An ethanol water mixture containing 36% by weight of ethanol is differentially distilled at 1 atm pressure and the mixture is reduced to a maximum ethanol concentration of 6 mol% Determine the composition of the distillate.
   The VLE data: [16]

Mol frac of ethanol in liquid(X)	0.18	0.16	0.14	0.12	0.10
Mole fraction of ethanol in vapor(Y)	0.517	0.502	0.485	0.464	0.438

5. Write notes on:
   (a) Adsorption wave and break through curve
   (b) Pressure solving and thermal solving methods, BET Isotherm. [8+8]

6. For mass transfer across a phase interface, what is the difference between the film, penetration, and surface-renewal theories, particularly with respect to the dependence on diffusivity? [16]

7. Can absorption be accompanied by a temperature change? Why? What is the difference between physical absorption and chemical (reactive) absorption? [16]

8. What is dialysis and what are the different equipment available for dialysis and explain in detail about Hemodialysis in Artificial Kidney? [16]

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Code No: 07A42301 **R07** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
MASS TRANSFER AND SEPARATION
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. For mass transfer across a phase interface, what is the difference between the film, penetration, and surface-renewal theories, particularly with respect to the dependence on diffusivity? [16]

2. Write notes on:

   (a) Adsorption wave and break through curve

   (b) Pressure solving and thermal solving methods, BET Isotherm. [8+8]

3. Write short note on :

   (a) fixed bed leaching

   (b) Moving bed leaching with neat diagrams. [16]

4. What is dialysis and what are the different equipment available for dialysis and explain in detail about Hemodialysis in Artificial Kidney? [16]

5. Can absorption be accompanied by a temperature change? Why? What is the difference between physical absorption and chemical (reactive) absorption? [16]

6. How does the concentration gradient for the molar transfer rate differ when expressing the transfer in overall and local transfer coefficients respectively? [16]

7. Distinguish between Eddy and Molecular Diffusion? [16]

8. An ethanol water mixture containing 36% by weight of ethanol is differentially distilled at 1 atm pressure and the mixture is reduced to a maximum ethanol concentration of 6 mol% Determine the composition of the distillate.
   The VLE data: [16]

Mol frac of ethanol in liquid(X)	0.18	0.16	0.14	0.12	0.10
Mole fraction of ethanol in vapor(Y)	0.517	0.502	0.485	0.464	0.438

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Code No: 07A42301 **R07** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
MASS TRANSFER AND SEPARATION
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. For mass transfer across a phase interface, what is the difference between the film, penetration, and surface-renewal theories, particularly with respect to the dependence on diffusivity? [16]

2. Write short note on :

   (a) fixed bed leaching

   (b) Moving bed leaching with neat diagrams. [16]

3. Can absorption be accompanied by a temperature change? Why? What is the difference between physical absorption and chemical (reactive) absorption? [16]

4. Distinguish between Eddy and Molecular Diffusion? [16]

5. What is dialysis and what are the different equipment available for dialysis and explain in detail about Hemodialysis in Artificial Kidney? [16]

6. Write on:

   (a) Adsorption wave and break through curve and

   (b) Pressure solving and thermal solving methods. BET Isotherm. [8+8]

7. How does the concentration gradient for the molar transfer rate differ when expressing the transfer in overall and local transfer coefficients respectively? [16]

8. An ethanol water mixture containing 36% by weight of ethanol is differentially distilled at 1 atm pressure and the mixture is reduced to a maximum ethanol concentration of 6 mol% Determine the composition of the distillate.
   The VLE data: [16]

Mol frac of ethanol in liquid(X)	0.18	0.16	0.14	0.12	0.10
Mole fraction of ethanol in vapor(Y)	0.517	0.502	0.485	0.464	0.438

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