VLE data are given below :

x	y
0.08	0.36
0.1	0.42
0.2	0.58
0.3	0.67
0.4	0.73
0.5	0.78
0.7	0.87
0.8	0.96
0.95	0.98

Unit III

5. (a) Discuss properties of a good solvent used in extraction. **7**

(b) Discuss triangular diagram used in extraction for various types of system. **8**

6. Discuss the working of Kuhni extractor with the help of neat diagram. **15**

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B. Tech. EXAMINATION, May 2017

(Sixth Semester)

(B. Scheme) (Main & Re-appear)

CHE

CHE-308-B

MASS TRANSFER–II

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Make suitable assumptions wherever necessary. Assume any missing data.

Unit I

1. (a) Discuss flash vaporization with neat diagram. **7**

(b) A mixture containing 70 mole % benzene and 30 mole % toluene is to be vaporized at 760 mm Hg until 1/3 moles of original liquid mixture are in vapour phase. Calculate the compositions of the distillate and the residue when the separation takes place under equilibrium distillation. The average relative volatility of benzene with respect to toluene is 2.5. **8**

2. (a) Explain Raoult's law. Show that relative volatility for ideal binary mixture is $\alpha = P_A/P_B$; where P_A, P_B is vapour pressure of A and B at any temperature. **7**

(b) Discuss minimum and maximum boiling azeotrope. **8**

Unit II

3. (a) Explain the Ponchon and Savarit method to calculate the number of theoretical trays for separation of binary mixtures, when there are negligible heat losses. **10**

(b) Discuss the types of plate efficiency. **5**

4. A bubble cap fractionating column consisting of 12 plates working at an average efficiency of 75% is being used to distill 1000 kg/hr of aqueous methanol at its bubble point entering the tower. The feed, overhead product and bottom product are 50 mole %, 90 mole % and 10 mole % methanol respectively. A total condenser is provided. The reflux is sent at its saturation temperature. If the reflux ratio is 1.7 times the minimum check whether the column available is satisfactory. **15**

Unit IV

7. (a) Explain Adsorption Isotherm and its application. **7**

(b) Discuss characteristics and properties of adsorbents. **8**

8. Discuss the working of Bollman extractor with the help of neat diagram. **15**

Unit IV

7. (a) Explain Adsorption Isotherm and its application. **7**

(b) Discuss characteristics and properties of adsorbents. **8**

8. Discuss the working of Bollman extractor with the help of neat diagram. **15**