https://www.kuonline.in

Roll No. ..... Total Pages : 3

BT-6/M-20 **36143**

CHEMICAL ENGG. MASS TRANSFER-II

Paper–CHE-302 N

Time : Three Hours] [Maximum Marks : 75

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

1. 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 enters 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. VLE data are given below :

x	y
0.08	0
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

15

https://www.kuonline.in

2. Drive the Rayliegh equation in differential distillation of binary system. 15

3. (a) Explain Raoult's law for ideal liquid solution. 8

(b) What is the significance of absorption factor? Explain briefly. 7

4. (a) Drive the expression of HETP in packed tower. 8

(b) Describe briefly the Azeotropic distillation. Also focus on the concept of maximum and minimum boiling azeotropes. 7

5. Explain in details about the total material balance for the Single stage and Multiple Stage Counter-Current Extraction with neat sketch. 15

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

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

7. (a) Distinguish between the physisorption and chemisorption. 7

(b) Discuss various principal adsorbents and their applications. 8

https://www.kuonline.in

https://www.kuonline.in

8. Write short notes on the following :

(a) Fractional distillation.

(b) Feed condition used in distillation process.

(c) Mixer settler. (5×3=15)