

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – V • EXAMINATION – WINTER-2014

Subject Code:3350502**Date: 28 / 11/2014****Subject Name: Mass Transfer-II****Time: 10:30AM TO1:00PM****Total Marks: 70**

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.
7. Draw the figure wherever necessary.

- Q.1 Answer any seven out of ten. 14
1. Define Relative Volatility.
 2. States Raoult's law.
 3. Classify equipment for gas-liquid operation.
 4. Define absolute humidity and dew point.
 5. What do you mean by equilibrium and free moisture content?
 6. Classify drying equipments.
 7. Give industrial examples of adsorption.
 8. What is ion exchange?
 9. Define nucleation & crystal growth.
 10. Write industrial applications of crystallization.
- Q.2 (a) Draw the neat & clean figure of tray tower. 03
- OR
- (a) Discuss the importance of gas-liquid operation. 03
- (b) Write industrial applications of distillation. 03
- OR
- (b) Explain vapor liquid equilibria. 03
- (c) Derive material balance equation of flash vaporization. 04
- OR
- (c) Discuss steam distillation. 04
- (d) Derive Rayleigh's equation. 04
- OR
- (d) Compare azeotropic and extractive distillation. 04
- Q.3 (a) Define percentage saturation, wet bulb temp., dry bulb temp. 03
- OR
- (a) Define relative saturation, humid heat, humid volume. 03
- (b) Explain psychrometric chart for air water system. 03
- OR
- (b) Explain counter flow cooling tower. 03
- (c) Discuss the purposes of contact of gas with pure liquid. 04
- OR
- (c) Explain random and regular packing. 04
- (d) Draw the neat & clean figure of rotary dryer. 04
- OR

	(d) Explain drying rate curve.	04
Q.4	(a) Draw the figure of pressure swing absorber.	03
	OR	
	(a) Compare types of adsorption.	03
	(b) Advantages and disadvantages of tray dryer.	04
	OR	
	(b) Explain Meir's theory	04
	(c) Distinguish reboilers and their uses.	07
Q.5	(a) Explain Swenson walker crystallizer .	04
	(b) Derivation of equation for drying time for constant rate period.	04
	(c) Discuss characteristics of commonly used adsorbents	03
	(d) Compare batch and continuous drying.	03
