

- Q.19 What do you mean by humidity ? Write in brief about relative and percentage humidity
- Q.20 Explain the terms channeling and loading in packed column
- Q.21 Discuss rate of drying curve
- Q.22 Write the role of diffusion in mass transfer

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 What is tower packing ? Explain the working different types of tower packing and write about the properties of tower packing
- Q.24 Define the word drying. Explain the working of tray dryer with the help of neat diagram
- Q.25 Write short note on any two of the following:

- a) Dew point
- b) Moisture content on wet basis
- c) Wet bulb temperature
- d) Humid Heat

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4th Sem / Chemical Engg. (Pulp & Paper)

Subject : Mass Transfer

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 In Fick's first Law, what does the symbol D represent
 - a) Diffusion coefficient
 - b) Density
 - c) Distance
 - d) Dynamic viscosity
- Q.2 What does film theory assume?
 - a) A thick turbulent layer for mass transfer
 - b) A thin stagnant film through which diffusion occurs
 - c) Instantaneous mass transfer across the entire phase
 - d) No resistance to mass transfer

Q.3 What does HTU stand for in gas absorption ?

- a) Heat Transfer unit
- b) Height of Transfer unit
- c) Hydraulic Transfer Unit
- d) Humidity Transfer Unit

Q.4 What is the definition of humidity ?

- a) Amount of water vapor in the air
- b) Amount of dry air in the mixture
- c) Temperature of the air
- d) Pressure of the air

Q.5 What is equilibrium moisture content?

- a) Moisture level where material gains water
- b) Moisture Level where material neither gains nor loses water
- c) Maximum possible moisture content
- d) Minimum possible moisture content

Q.6 Which problem is associated with excessive liquid flow in a packed column?

- a) Flooding b) Channeling
- c) Weeping d) Loading

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. $(6 \times 1 = 6)$

- Q.7 Give names of any two mass transfer operations
- Q.8 Expand NTU
- Q.9 Discuss any one use of humidity chart
- Q.10 What is the effect if temperature on adsorption
- Q.11 Write any one application of drying operation
- Q.12 Write the mathematical formula of fick,s law

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. $(8 \times 4 = 32)$

- Q.13 What is the relation between film and overall mass transfer coefficient.
- Q.14 Discuss penetration theory of mass transfer
- Q.15 What points are to be considered while selecting a solvent in gas absorption ?
- Q.16 Draw and explain different cooling tower arrangements
- Q.17 Write any four industrial applications of adsorption
- Q.18 Define adsorption and write in brief about its types