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4th Sem.
Branch : Chemical
Sub.: Mass Transfer Operations-I

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 Liquid vapour (gas) phases contact mass transfer operation is

a) Gas absorption b) Humidification

c) Only a d) Both a and b

Q.2 Mass flux is represented by symbol

a) ni b) Ni

c) Ji d) ji

Q.3 Types of packing are

a) Regular b) Random

c) Only a d) Both a and b

Q.4 Dry bulb temperature recorded by thermometer when bulb is kept

a) Wet b) Dry

c) Both a and b d) None of the above

Q5. In drying the raw material fed is

a) Semi solid b) Solution

c) Gases d) Solids

Q.6 In tray drier the mode of heat transfer is

a) Direct b) Indirect

c) Both a & b d) None of the above

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Units of diffusivity is _____.

Q.8 Define mass transfer coefficient.

Q.9 The reverse of absorption is known as _____.

Q.10 Write name of Non adiabatic humidifier equipment.

Q.11 Spray chambers are mainly used in industries for _____.

Q.12 Define critical moisture content.

SECTION-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Describe role of diffusion in mass transfer operation with an unit operation.

Q.14 Derive overall mass transfer coefficient equation.

Q.15 Write criteria for selection of solvent in gas absorption.

Q.16 Write merit, demerit and application of packed column.

Q.17 Explain spray ponds with a diagram.

Q.18 Explain mechanism of wet bulb temperature.

Q.19 Compare drying and evaporation operation.

Q.20 Describe equilibrium moisture content.

Q.21 Explain the concept of HTU, NTU and HETP for packed column.

Q.22 Discuss equilibrium in mass transfer operation with an example.

SECTION-D

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

Q.23 Describe fluidized bed dryer with their construction working and application .

Q.24 Explain rate of drying curve.

Q.25 Derive the equation for steady state diffusion through stationary gas.