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220642

Roll No.

4th Sem.

Branch : Chemical (Pulp & Paper)

Sub. Mass Transfer

Time : 3 Hrs.

M.M. : 60

SECTION-A

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

- Q.1 HTU means
- a) Height of temperature Unit
 - b) Height of transfer Unit
 - c) High time unit
 - d) None
- Q.2 Rate of drying is constant at :
- a) Falling rate period
 - b) Equilibrium period
 - c) Constant rate period
 - d) Transitional period
- Q.3 Excessive liquid flow in a packed column causes
- a) Flooding
 - b) Channeling
 - c) Weeping
 - d) Loading
- Q.4 The theory that explain mass transfer across a thin stagnant film
- a) Penetration theory
 - b) Film theory
 - c) Surface Renewal
 - d) All of the above

- Q5. Humidity chart help of determine
 a) Dry bulb temperature b) Wet bulb temperature
 c) Dew point d) All of the above
- Q.6 Drying of solids involves _____ transfer.
 a) Heat b) Mass
 c) Heat and Mass d) None

SECTION-B

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

- Q.7 Write the formula of fick's law of diffusion.
 Q.8 Define dry bulb temperature.
 Q.9 Write name of any two mass transfer operations.
 Q.10 Write the formula for measuring wet moisture content.
 Q.11 What are the units of humidity?
 Q.12 Write the full form of HETP.

SECTION-C

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

- Q.13 Explain the penetration theory of mass transfer.
 Q.14 Derive the relation for diffusion through stationary gas.
 Q.15 Describe the different cooling tower arrangements.
 Q.16 Explain time of drying with its graphical presentation.
 Q.17 Write a note on types of tower packing.
 Q.18 Explain rate of drying curve.
 Q.19 Describe about humidity chart

- Q.20 What do you mean by adsorption write its industrial applications.
 Q.21 Write about the problems encountered in packed tower.
 Q.22 Write about molecular and eddy diffusion.

SECTION-D

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

- Q.23 Explain the construction and working of tray dryer with the help of neat diagram.
 Q.24 With the help of neat diagram discuss the working of natural draft cooling tower.
 Q.25 Write short note on any two of the following:
 a) Packed column
 b) Overall mass transfer coefficient
 c) Height of transfer units
 d) Humidity chart