DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2019

Course: B. Tech in – Chemical

Subject Name: Mass Transfer Operation-I

Sem: III

Subject Code: BTCHC 502

Max Marks: 20   Date:- 24/09/2019   Duration:- 1 Hr.

Instructions to the Students:

1. All questions are compulsory.
5. Question one are compulsory.
6. Solve any two from question 2 and solve any one from question 3.
7. Assume suitable data wherever required.

		(Level/CO)	Marks
Q.1	**Attempt following Questions.**		6
	1. Ordinary diffusion process is also called _____ diffusion. A) pressure b) thermal c) concentration d) forced	Evaluation	
	2. Schmidt number is given by----a) $\frac{\rho}{D_{AB}}$ b) Re.Pe c) Sh x Pe d) Re/Pe	Application	
	3. The reciprocal of stripping factor is termed as a) selectivity index b) relative volatility c) absorption factor d) Murphree efficiency	Analysis	
	4. ($N_{Re} \cdot N_{Sc}$) is termed in mass transfer operation as the _____ number a) Stanton b) Sherwood c) Peclet d) none of these	Remember	
	5. The partial pressure distribution of an ideal gas diffusing through another stagnant ideal gas at steady state follows a/an _____ law a) exponential b) parabolic c) linear d) cubic	Understand	
	6. Mass transfer co-efficient (K) and diffusivity (D) are related according to film theory as a) $K \propto D$ b) $K \propto D^{0.5}$ c) $K \propto D^{1.5}$ d) $K \propto D^2$	Understand	
Q.2	**Solve Any Two of the following.**		3 X 2
(A)	What is process to Choose solvent for Absorption operation?	Remember	
(B)	Derive $J_A = -J_B$	Understand	
(C)	Explain term Cascade with their types.	Application	
Q.3	**Solve Any One of the following.**		8
(A)	Derive Material Balance Equation for countercurrent flow Absorption Operation	Application	
(B)	Oxygen (A) is diffusing through carbon monoxide (B) under steady state conditions with carbon monoxide non diffusing. The total pressure is $1 * 10^5$ N/m^2 and temperature 0°C. The partial pressure of oxygen at two planes 2 mm apart is respectively, 13000 and 6500 N/m^2. The diffusivity for the mixture is $1.87 * 10^{-5}$ m^2/s. Calculate the rate of diffusion of oxygen in Kmol/s through each square meter of two planes.	Evaluation	

*** End ***

CO-Que Mapping

TY-chem