sy-chem.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2019

Course: B. Tech in - Chemical **Sem: III**

Subject Name: Chemical Process Calculation **Subject Code:BTCH302**

Max Marks: 20 **Date:-** **Duration:- 1 Hr.**

Instructions to the Students:

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

		(Level/CO)	Marks
Q. 1	**Attempt following Questions.**		
	1.N.T.P. corresponds to..... a) 1 atm.absolute pressure& 0°C b) 760 mm Hg gauge pressure & 0°C c) 760 torr & 15°C d) 101.325 KPa gauge pressure & 0°C.	4	6
	2.A 'limiting reactant' is the one, which decides the _____ in the chemical reacation a) equilibrium constant b) conversion c) rate constant d) none of these	2	
	3. Recycling in a chemical process facilitates a) increased yield b) enrichment of product c) heat conservation d) all (a), (b) &(c)	3	
	4. Giga' stands for.....a) 10^9 b) 10^{-12} c) 10^{12} d) 10^{15}		
	5. One Newton is equal to _____ dynes a) 10^2 b) 10^5 c) 10^4 d) 10^3		
	6. Number of gm moles of solute dissolved in 1 kg of solvent is called it's a) normality b) molarity c) molality d) formality	4	
Q.2	**Solve Any Two of the following.**		X 2
(A)	In double effect Evaporator plant second effect is maintained under vacuum of 475 Torr (mmHg). Find the absolute pressure in Kpa, bar and psi.	4	
(B)	An aqueous solution of acetic acid of 35% concentrated by weight has density 1.04 Kg/L at 298° K. Calculate Molality, Normality and Morlality.	2	
(C)	A feed to a continuous fractionating column analyses by wt 28% Benzene and 72 % toluene. Analysis of distillate shows 52% Benzene and 05 % toluene was found in bottom product. Calculate amount of distillate and bottom product per 1000 Kg of feed per hour. Also calculate % recovery of benzene.	2	
Q. 3	**Solve Any One of the following.**		8
(A)	With neat sketch describe Recycle, Bypass and Purge Operation.	3	
(B)	Pure CO_2 may be prepared by treating limestone with aq. Sulphuric acid limestone containing $Caco_3$ & $Mgco_3$ remainder being inert insoluble material. Acid used contained 12% H_2SO_4 by weight. Residue from process had following composition $CaSO_4$- 8.56%, $MgSO_4$ 5.23%, H_2SO_4 – 1.05%, Inerts – 0.53%, CO_2- 0.12% & water 84.5%. During process mass was warmed & CO_2 and water vapour are removed calculate analysis of limestone.	2	

*** End ***