Seat No.: Enrolment No

GUJARAT TECHNOLOGICAL UNIVERSITY BE- Vth SEMESTER-EXAMINATION - MAY/JUNE - 2012

Subject code: 150505 Date: 07/06/2012				
_		ame: Fundamentals of Chemical Engineering Unit Operations 30 pm – 05:00 pm Total Marks:	70	
Instructions:				
2.	Mak	empt all questions. The suitable assumptions wherever necessary. The sto the right indicate full marks.		
Q.1	(a)	How unit operations differ from unit processes? Discuss any four types of	07	
		unit operations by giving their brief introduction.		
	(b)	Define fluid. Discuss about the Newtonian and Non Newtonian behavior of	07	
		fluids with suitable examples.		
Q.2	(a)	With a neat sketch explain the construction, working principle and industrial application of ball mill.	07	
	(b)	What are the advantages and disadvantages of Rotameter? Explain the	07	
		working principle of Rotameter.		
		OR		
	(b)	(i) Explain the term Priming, Cavitations and NPSH	03	
		(ii) How does a centrifugal pump differ from a reciprocating pump?	04	
Q.3	(a)	Discuss about the open circuit and close circuit grinding.	07	
	(b)	Draw the neat sketch of 1-2 shell and tube heat exchanger and explain the	07	
		function of each part.		
		OR		
Q.3	(a)	Write a short note on "Gravity thickener". (A note preferably should include	07	
		working principle, brief about construction, applications and related issues)		
	(b)	Differentiate between Drop wise and Film wise condensation.	07	
Q.4	(a)	Define Fourier's law of heat conduction. Distinguish between Conduction,	07	
		Convection and Radiation mode of heat transfer with suitable examples.		
	(b)	What are the different types of packing material used in packed tower?	07	
		Differentiate between random and regular packing arrangement.		
		OR		
Q.4	(a)	What is evaporation? Explain the working principle and industrial	07	
		application of falling film type evaporator.		
	(b)	State the different types of cooling towers and discuss the working of any	07	
		one of them in detail.		

- Q.5 (a) Name the various types of distillation and schematically explain the working 07 of any one of them. Cite any two industrial application of distillation.
 - (b) Distinguish between gas absorption and stripping. Cite any five industrial 07 applications of gas absorption operation.

OR

- Q.5 (a) Explain the working principle of a rotary drier. Cite any two industrial 07 application of rotary drier.
 - (b) What is liquid-liquid extraction? State the advantages and disadvantages of 07 liquid-liquid extraction.
