	Seat	t No.: Enrolment No.	
		GUJARAT TECHNOLOGICAL UNIVERSITY	Y
	B. PHARM – SEMESTER I • EXAMINATION – WINTER • 2015 Subject code: 2210001 Date: 29-12-2015 Subject Name: Unit Operation - I		
	Time: 10:30 am - 01:30 pm Total Marks: 80		80
	Ins	tructions:	
		 Attempt any five questions. Make suitable assumptions wherever necessary. 	
		3. Figures to the right indicate full marks.	
Q.1	(a)	Describe the mechanisms of size reduction with suitable examples of equipment.	06
	(b) (c)	Advantages of size reduction process. Discuss rotary cutter mill.	05 05
Q.2	(a) (b) (c)	Discuss sieve shaker machine. Discuss cyclone separator for size separation. Define (1) Size separation (2) Screening (3) Sieve number (4) Coarse powder (5) Oversize material.	06 05 05
Q.3	(a) (b) (c)	Classify mixing equipments based on scale of mixing. Discuss mechanism of mixing in solids. Discuss planetary motion mixer for mixing.	06 05 05
Q.4	(a) (b) (c)	Discuss Mier's supersaturation theory with its limitations. Explain mechanism of crystallization using neat and labeled diagram. Discuss the factors affecting caking of crystal.	06 05 05
Q.5	(a) (b) (c)	Discuss Soxhlet extractor for continuous hot extraction. Discuss solvents used for extraction. Applications of extraction and leaching in pharmacy.	06 05 05
Q. 6	(a) (b) (c)	Discuss the basic elements of automated process control systems. Discuss the objectives of automated process control systems. Define (1) Hazard (2) Accident (3) Process (4) Control (5) Instrumentation.	06 05 05
Q.7	(a) (b) (c)	Discuss prevention of fire hazards. Enlist factors affecting the selection of a mill for size reduction. Discuss agitated batch crystallizer.	06 05 05
