

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject Code: 2210001

Date: 18-06-2014

Subject Name: Unit Operation-I

Time: 02:30 pm - 05:30 pm

Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	(a)	Explain various mechanisms of size reduction along with examples for each.	06
	(b)	Write a note on construction, principle, working, advantages, disadvantages and applications of fluid energy mill.	05
	(c)	Explain in detail the objectives for size reduction.	05
Q.2	(a)	Describe with a clean and labelled diagram the construction, principle, working, advantages, disadvantages and application of cyclone separator.	06
	(b)	Write a detailed note on elutriation method for size separation.	05
	(c)	Give the classification of powders based on size and list the specification and standard for sieves.	05
Q.3	(a)	Explain the mechanisms for solid – liquid and solid – solid mixing.	06
	(b)	Define and explain the following: 1). Mixing 2). Mixing index	05
	(c)	Explain in detail the Planetary mixer.	05
Q.4	(a)	What is Unit Cell. Explain various types of crystal shape and crystal habit.	06
	(b)	Explain in detail the theory of crystallization.	05
	(c)	1). Differentiate crystallization and precipitation. 2). Explain various method for achieving supersaturation.	05
Q.5	(a)	Explain Mier's Super saturation theory. Discuss its limitations and applications.	06
	(b)	Classify crystallizers. Write a detailed note on construction, principle, working, advantages, disadvantages and application of any one.	05
	(c)	Discuss the various theories for calculation of energy requirement in size reduction.	05
Q. 6	(a)	Enumerate various types of extraction processes. Explain in detail supercritical fluid extraction method.	06
	(b)	Differentiate maceration and percolation along with examples.	05
	(c)	Discuss various solvents used in extraction process.	05
Q.7	(a)	Write a note on temperature measurement in automated process control system.	06
	(b)	Explain various industrial hazards and the measures to combat them.	05
	(c)	Explain in detail flow level measurement in automated process control system.	05
