

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – I • EXAMINATION – SUMMER 2013

Subject Code: 2210001

Date: 11-05-2013

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.**

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|-------------|-----|---|-----------|
| Q.1 | (a) | Explain the theories related to the size reduction of a powder. | 06 |
| | (b) | Explain principle, construction, working, advantages and disadvantages of Swenson Walker crystallizer with the help of a diagram. | 05 |
| | (c) | Explain the different factors affecting choice of extraction process. | 05 |
| Q.2 | (a) | Define extraction and explain theory of extraction | 06 |
| | (b) | Describe the construction, working, advantages, disadvantages and uses of Colloid Mill with the help of a diagram. | 05 |
| | (c) | Define i) crystal lattice ii) crystal habit iii) polymorphs iv) crystal solvates v) crystal systems | 05 |
| Q.3 | (a) | Explain application of automatic process control in pharmaceutical industries with suitable example. | 06 |
| | (b) | Explain the mechanism of crystallization. | 05 |
| | (c) | Comment on the following statements.
i) Ball mill is not useful for the size reduction of fibrous material.
ii) Fluid energy mill is better equipment for the size reduction of thermolabile substances than Hammer mill. | 05 |
| Q.4 | (a) | What are possible industrial hazards? How can they be controlled? | 06 |
| | (b) | Describe the construction, working, advantages, disadvantages and uses of Roller Mill with the help of a diagram. | 05 |
| | (c) | Explain the mechanisms of liquid mixing. | 05 |
| Q.5 | (a) | i) List the specifications and standards for sieves.
ii) Classify and define the various grades of coarse and fine powders. | 06 |
| | (b) | Explain principle, construction, applications, advantages and disadvantages of ultrasonic mixer with the help of a diagram. | 05 |
| | (c) | Write a note on waste water treatment in pharmaceutical industry. | 05 |
| Q. 6 | (a) | Discuss the Mier's super saturation theory. What are its limitations? | 06 |
| | (b) | Describe the construction, working, and uses of cyclone separator with the help of a diagram. | 05 |
| | (c) | Write a note on solvents used for extraction. | 05 |
| Q.7 | (a) | Enlist equipment used for solid-solid mixing. Explain principle, construction, applications, advantages and disadvantages of planetary mixer with the help of a diagram. | 06 |
| | (b) | What is caking of crystals? Explain methods for prevention of caking of crystals | 05 |
| | (c) | Explain the elutriation method for particle size separation. | 05 |
