

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. - SEMESTER-1 • EXAMINATION – SUMMER -2018

Subject Code: 2210001**Date: 01/05/2018****Subject Name: Unit Operation-I****Time: 02:30 PM TO 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) | Discuss the objectives and importance of size reduction with examples. | 06 |
| | (b) | Describe theories for energy requirement in size reduction. | 05 |
| | (c) | Explain the construction, working, advantages, disadvantages and uses of fluid energy mill. | 05 |
| Q.2 | (a) | Describe pharmacopoeial standards for sieves. How powders are classified according to size as per Indian Pharmacopoeia. | 06 |
| | (b) | Explain particle size determination by sedimentation. | 05 |
| | (c) | Describe cyclone separator. | 05 |
| Q.3 | (a) | Classify mixing equipments based on scale of mixing. | 06 |
| | (b) | Discuss planetary motion mixer for mixing. | 05 |
| | (c) | Classify liquid mixers and explain propeller mixer in detail. | 05 |
| Q.4 | (a) | Describe Mier's theory for supersaturation with limitations. | 06 |
| | (b) | What is polymorphism and give its significance and explain the importance of crystallization in pharmaceutical industries. | 05 |
| | (c) | Describe Swenson-Walker crystallizer with diagram. | 05 |
| Q.5 | (a) | Enumerate solvent employed for extraction. Describe the properties of water and ethanol as solvents for extraction. | 06 |
| | (b) | Write a note on supercritical fluid extraction. | 05 |
| | (c) | Applications of extraction and leaching in pharmacy. | 05 |
| Q.6 | (a) | Explain in detail flow level measurement in automated process control system. | 06 |
| | (b) | Write a note on automated process control system for temperature control. | 05 |
| | (c) | Describe percolation method for extraction. | 05 |
| Q.7 | (a) | Write in brief about waste water treatment in pharmaceutical industry. | 06 |
| | (b) | Explain various industrial hazards and the measures to combat them. | 05 |
| | (c) | Discuss caking in crystals and How to prevent it. | 05 |
