

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**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.

- 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**

\*\*\*\*\*