

GUJARAT TECHNOLOGICAL UNIVERSITY
BPHARM – SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 2210001**Date: 09-01-2013****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.

- Q.1** (a) Write various factors affecting size reduction and discuss the importance of size reduction in pharmaceutical field. **06**
- (b) Define size reduction; Give different mechanisms of size reduction. **05**
- (c) Explain with diagram construction, working, advantages, limitations and uses of Fluid Energy Mill. **05**
- Q.2** (a) Differentiate Elutriation from Sedimentation and explain multistage elutriator. **06**
- (b) Discuss the principle and operation of Cyclone Separator. **05**
- (c) Why size separation is required? What are the various official grades of powder? **05**
- Q.3** (a) Define extraction and write a note on theory of extraction. **06**
- (b) Why multiple maceration gives more efficient extraction than simple maceration explained with example. **05**
- (c) With a neat and labeled diagram of Soxhlet extractor for continuous hot extraction. **05**
- Q.4** (a) Enlist mixers for semisolids. Describe shear mixers. **06**
- (b) Define mixing and explain different types of mixture with example. **05**
- (c) Classify liquid mixers. Describe propeller mixers. **05**
- Q.5** (a) Describe Mier's theory for Supersaturation with limitations. **06**
- (b) Explain in detail about Swenson-Walker crystallizer with diagram **05**
- (c) Explain Co-crystals with examples, Discuss caking in crystals and its remedy. **05**
- Q. 6** (a) Discuss about objectives and mechanism of mixing. **06**
- (b) Describe briefly the different devices available for measurement of temperature and pressure. **05**
- (c) Write brief note on fire extinguishers. **05**
- Q. 7** (a) Explain application of automatic process control in pharmaceutical industries with suitable example. **06**
- (b) Write a note on waste water treatment in pharmaceutical industry. **05**
- (c) Write a causes and preventions of electrical hazards in pharmaceutical industries. **05**
