Subject code: 2210001

Subject Name: Unit operation – I

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

Time: 02:30 pm - 05:30 pmTotal Marks: 80 **Instructions:** 1. Attempt any five questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Write various factors affecting size reduction and discuss the importance of size $\mathbf{Q.1}$ reduction in pharmaceutical field. Define size reduction: Give different mechanisms of size reduction. 05 (b) Explain with diagram construction, working, advantages, limitations and uses of 05 Fluid Energy Mill. **Q.2** (a) Differentiate Elutriation from Sedimentation and explain multistage elutriator. 06 05 Discuss the principle and operation of Cyclone Separator. (b) Why size separation is required? What are the various official grades of powder? 05 (c) 06 Q.3Define extraction and write a note on theory of extraction. (a) Why multiple maceration gives more efficient extraction than simple maceration 05 (b) explained with example. With a neat and labeled diagram of Soxhlet extractor for continuous hot extraction. **Q.4** Enlist mixers for semisolids. Describe shear mixers. 06 (a) Define mixing and explain different types of mixture with example. 05 (b) Classify liquid mixers. Describe propeller mixers. 05 (c) 0.5 (a) Describe Mier's theory for Supersaturation with limitations. **06** (b) Explain in detail about Swenson-Walker crystallizer with diagram 05 Explain Co-crystals with examples, Discuss caking in crystals and its remedy. 05 (c) Q. 6 Discuss about objectives and mechanism of mixing. 06 (a) 05 (b) Describe briefly the different devices available for measurement of temperature and pressure. Write brief note on fire extinguishers. 05 Q. 7 (a) Explain application of automatic process control in pharmaceutical industries **06** with suitable example. Write a note on waste water treatment in pharmaceutical industry. 05 (b) (c) Write a causes and preventions of electrical hazards in pharmaceutical industries. 05

Date: 09-01-2013