Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY B.Pharm. - SEMESTER- I -- EXAMINATION - SUMMER - 2016 Subject code: 2210001 Date: 23/05/2016 Subject Name: Unit Operation-I Time: 2:30 PM To 5:30 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 Describe the factors affecting the process of size reduction. 06 (a) Explain the construction, working, advantages, disadvantages and uses of ball (b) 05 mill. Describe theories for energy requirement in size reduction. (c) 05 Q.2 (a) Describe pharmacopoeial standards for sieves. 06 Describe cyclone separator. (b) 05 Explain elutriation. Describe elutriation methods. (c) 05 Q.3 (a) Give the mechanism of solid-solid and liquid-liquid mixing. 06 Enlist mixers for semisolid. Describe sigma-blade mixer. (b) 05 (c) Enlist mixers for powder .Describe double cone mixer. 05 Q.4 (a) Describe Mier's theory for supersaturation with limitations. 06 Describe Swenson-Walker crystallizer with diagram. (b) 05 (c) Define the following terms: 05 1. Crystal 2. Polymorphism 3. Amorphous compound 4. Nucleation 5. Crystal hydrates Q.5 Enumerate solvent employed for extraction. Describe the properties of water and (a) 06 ethanol as solvents for extraction. Describe Soxhlet apparatus for extraction. 05 (b) Describe percolation method for extraction. (c) 05 Q. 6 Describe the briefly the different devices available for measurement of (a) 06 temperature. (b) Write function of basic element for automated process control system. 05 Describe crystal cooling crystallizer with diagram. (c) 05 Q.7 Write in brief about waste water treatment in pharmaceutical industry. 06 (a) (b) Explain the mechanisms of size reduction with a suitable diagram. 05 Discuss caking in crystals and How to prevent it. 05 (c)
