

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.

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