

GUJARAT TECHNOLOGICAL UNIVERSITY
B. PHARM. - SEMESTER-I • EXAMINATION – SUMMER 2017

Subject Code: 2210001

Date: 30/05/2017

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.

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|-------------|-----|---|-----------|
| Q.1 | (a) | Discuss in detail factors affecting on size reduction | 06 |
| | (b) | Define size reduction. Discuss mechanisms of size reduction with suitable diagram | 05 |
| | (c) | Write a note on principle, construction, working, advantages, disadvantages and applications of ball mill with labeled diagrams | 05 |
| Q.2 | (a) | Define and classify the powder as per IP and enlist the specification of sieves | 06 |
| | (b) | Describe with a clean and labeled diagram the construction, principle, working, advantages, disadvantages and applications of Rotex Screen. | 05 |
| | (c) | Discuss in detail elutriation method used for size separation | 05 |
| Q.3 | (a) | Define mixing and write its applications in pharmacy. Discuss solid –solid mixing mechanism | 06 |
| | (b) | Explain principle, material of construction, applications, advantages and disadvantages of planetary mixer | 05 |
| | (c) | Discuss in detail with suitable examples positive mixing, negative mixing and neutral mixing. | 05 |
| Q.4 | (a) | Write a note on Mier’s supersaturation theory with its limitation and application | 06 |
| | (b) | Define caking of crystals. Explain factors affecting and prevention of caking | 05 |
| | (c) | Discuss the principle, construction, working, advantages, disadvantages and applications of Swenson walker crystallizer with labeled diagrams | 05 |
| Q.5 | (a) | Enlist the type of extraction process and discuss soxhlet extractor in detail | 06 |
| | (b) | Write applications of extraction in field of pharmacy | 05 |
| | (c) | Discuss in detail supercritical fluid extraction technique | 05 |
| Q. 6 | (a) | Write a note on elements of automatic process control systems | 06 |
| | (b) | Discuss automation in flow level and their measurement control | 05 |
| | (c) | Discuss principle, construction, working, advantages, disadvantages and applications of fluid energy mill with labeled diagrams | 05 |
| Q.7 | (a) | Describe in detail prevention of mechanical and chemical hazards | 06 |
| | (b) | Write a note on waste water system in pharmaceutical industry | 05 |
| | (c) | Draw neat and labeled diagram of mechanism of crystallization and explain in detail | 05 |
