

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-III Examination December 2009

Subject code: 230002 Subject Name: Pharmaceutical Engineering II

Date: 17 / 12 / 2009

Time: 12.00 - 3.00pm

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) Explain techniques used for improvement of powder flow. **06**
- (b) Define content uniformity. Give significance of content uniformity in pharmacy field. **05**
- (c) What is control chart? **05**  
In the quality control, 1000 tablets were inspected for weight variation and 2.5% were found out of limit range. What are the upper and lower  $3\sigma$  limits for this?
- Q.2**
- (a) Discuss in detail about factors affecting quality of pellet in Extrusion-Spheronization. **06**
- (b) Enlist methods used for measurement of powder flow. Explain BP recommended procedure for density measurement. **05**
- (c) Write a note on sampling techniques for content uniformity test. **05**
- Q.3**
- (a) Enlist application of SCF. Discuss in detail about pharmaceutical application. **06**
- (b) Describe weight uniformity % deviation limit as per IP 2007. Cefadroxil tablets were prepared each containing 500 mg of Cefadroxil. The prepared tablets were evaluated for weight uniformity test. Find out whether tablets full fill the requirement of IP 2007 or not? Data of individual weight (mg) of tablets are as follows. **05**
1. 617    2. 625    3. 624    4. 616    5. 632    6. 615    7. 628  
8. 630    9. 626    10. 619    11. 633    12. 606    13. 636    14. 640  
15. 625    16. 621    17. 633    18. 626    19. 622    20. 618
- (c) Explain direct methods for powder flow measurement. **05**
- Q.4**
- (a) Describe terms arching and rat holing. **06**  
Lactose granules was prepared by wet granulation method and evaluated for compressibility and flow property. Data of evaluation parameters of 10 gm granules are as follow.  
Bulk volume : 48 cc                      Tapped volume: 42 cc  
Heap height : 3 cm                      Heap diameter : 11.5 cm  
Calculate Hausner ratio, Carr's index and angle of repose of granules and give your comment.
- (b) Enlist control charts for attributes and explain c chart. **05**
- (c) Write a note on Rotary cylinder extruder. **05**

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|-------------|-----|---|-----------|
| <b>Q.5</b>  | (a) | Write a note on particles from gas-saturated solution.                          | <b>06</b> |
|             | (b) | Define critical orifice diameter. Describe flow through an orifice method.      | <b>05</b> |
|             | (c) | Discuss content uniformity acceptance criteria as per BP.                       | <b>05</b> |
| <b>Q. 6</b> | (a) | Describe various methods used for measurement of angle of repose.               | <b>06</b> |
|             | (b) | Draw schematic diagram of control chart and describe elements of control chart. | <b>05</b> |
|             | (c) | Explain cryopelletization.  | <b>05</b> |
| <b>Q.7</b>  | (a) | Define HME and explain its significance in Pharmaceutical Industry.             | <b>06</b> |
|             | (b) | Give significance of SCF in particle engineering and explain RESS technology.   | <b>05</b> |
|             | (c) | Write a note on interpretation of control charts                                | <b>05</b> |

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