

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

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

## GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-III Remedial Examination 2010

Subject code: 230002

Subject Name: Pharmaceutical Engineering-II

Date: 09 / 03/ 2010

Time: 02.30 pm – 05.30 pm

**Instructions:**

**Total Marks: 80**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Write a brief note on uniformity of Content of Single dose preparations as per IP 2007. **06**  
(b) Write a brief note on Sampling Technique for Content uniformity. **06**  
(c) Enumerate various dosage forms as per IP 2007 For which Content Uniformity test is to be performed. **04**
- Q.2** (a) Discuss in brief various factors influencing powder or granule flow. **06**  
(b) Define Angle of Repose. Discuss various methods for measurement of Angle of Repose. **05**  
(c) Define Hauser<sup>s</sup> Ratio and Carr's Compressibility Index with its pharmacopoeial specifications. **05**
- Q.3** (a) Describe the formulation ingredients used in Extrusion method. **06**  
(b) Write a short note on Centrifugal Fluid Bed Granulator. **05**  
(c) Explain about Screw Feed Extruders. **05**
- Q.4** (a) State true or false & justify. **06**  
1. Carbon Dioxide is most commonly used as Supercritical Fluid in the food and pharmaceutical Industry.  
2. In Gas as Antisolvent(GAS) process solute must be reasonably insoluble in the supercritical fluid which is used for its precipitation.  
(b) Explain the term Supercritical fluid, Critical temperature and Critical pressure with the help of a pressure temperature phase diagram. **05**  
(c) Explain different application Supercritical fluid in extraction process. **05**
- Q.5** (a) What are the various types of Control charts? Discuss in brief. **06**  
(b) In constructing control chart, how to establish Control Chart limits? **05**  
(c) What is the application of Control Chart in pharmacy? **05**
- Q. 6** (a) Write a brief note on development of Flow through an Orifice. **05**  
(b) Discuss in brief stages involved in Sponification process. **04**  
(c) Write different advantages and disadvantages of RESS Process. **04**  
(d) Differentiate between Mass flow and Funnel flow with suitable diagram. **03**
- Q.7** (a) What is Hot melt Extrusion? Describe the process and equipment used for Hot melt Extrusion. **06**  
(b) Name different techniques involve in micronization employing Supercritical Fluid as antisolvent. **02**

- (c) Process Control Record of Automatic filling of a parentral solution in vials from four different needles of machines are given below. (Lable fill is 10 ml, Required fill is 10.5 ml.)

Time the vial is sampled	Volume of solution filled in ml			
Day1				
8:30 a.m	10.7	10.5	10.6	10.5
9:20	10.5	10.5	10.8	10.7
10:15	10.5	10.9	10.5	10.5
11:25	10.8	10.5	10.5	10.5
1:00 p.m	10.5	10.7	10.5	10.5
2:00	10.5	10.8	10.5	10.5
3:00	10.6	10.5	10.9	10.6
4:00	10.5	10.5	10.7	10.7
Day 2				
8:30 a.m	10.5	10.7	10.7	10.5
9:20	10.6	10.5	10.8	10.5
10:15	10.7	10.8	10.8	10.7
11:25	10.5	10.6	10.6	10.6
1:00 p.m	10.4	10.5	10.5	10.8
2.20	10.5	10.6	10.4	10.9
3.30	10.6	10.6	10.5	10.8

Calculate the upper and lower control limit for X Chart and Range Chart.  
(Factor for X chart  $A_2= 0.73$  , Factor for R Chart  $D_L=0.00$ ,  $D_U=2.28$ )

\*\*\*\*\*