

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. Pharm. – SEMESTER – III • EXAMINATION – SUMMER 2013**

**Subject Code: 230002****Date: 11-06-2013****Subject Name: Pharmaceutical Engineering II****Time: 10.30 am - 01.30 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** (a) Define Content Uniformity. Discuss regulatory requirements of content uniformity as per IP 2007. **06**
- (b) Differentiate mass uniformity and content uniformity. Explain mass uniformity test in detail. **05**
- (c) Discuss factors affecting content uniformity in detail. **05**
- Q.2** (a) Enlist factors affecting powder flow. Discuss importance of powder flow in pharmaceuticals. **06**
- (b) Explain indirect methods for measurements of powder flow. **05**
- (c) Write a note on various techniques to improve flow properties of powder/granules. **05**
- Q.3** (a) Draw diagram of control chart. Describe the rules for interpretation of control chart. **06**
- (b) Write in detail about X-bar and R-chart. **05**
- (c) How are the upper and lower limits of control chart calculated? **05**
- Q.4** (a) Write a note on Hot melt extrusion. **06**
- (b) Describe the role of Microcrystalline cellulose in Pelletization. **05**
- (c) RAM Extruder- discuss in detail. **05**
- Q.5** (a) Define Super critical fluid (SCF) with examples. What is the significance of SCF in pharmaceuticals? **06**
- (b) Write in detail about RESS technology. **05**
- (c) Differentiate inclusion complex and solid dispersion. **05**
- Q.6** (a) Discuss the various methods for measurements of angle of repose. **06**
- (b) Give a brief account on sampling techniques with respect to content uniformity test. **05**
- (c) Explain Spheronization in detail. **05**
- Q.7** (a) Discuss Cryopellatization in detail. **06**
- (b) What are the pharmacopoeial specifications for Carr's index, Hausner's ratio and angle of repose? **05**
- (c) Write a note on SAS technology. **05**

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