

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. Pharm. – SEMESTER – III • EXAMINATION – WINTER • 2016**

**Subject Code: 230002****Date: 21-11-2016****Subject Name: Pharmaceutical Engineering - II****Time: 02:30 pm - 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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|-------------|-----|---|-----------|
| <b>Q.1</b>  | (a) | How will you determine flow property of a given powder sample?                                  | <b>06</b> |
|             | (b) | What are the measures to alter flow property of a given sample?                                 | <b>05</b> |
|             | (c) | How does a reposograph help determine dosage form suitability?                                  | <b>05</b> |
| <b>Q.2</b>  | (a) | Define “content uniformity”. Explain in details its importance in pharmaceutical dosage form.   | <b>06</b> |
|             | (b) | Briefly discuss “means of content uniformity achievement”.                                      | <b>05</b> |
|             | (c) | What are the techniques of sampling for content uniformity?                                     | <b>05</b> |
| <b>Q.3</b>  | (a) | What are the elements of control chart?   | <b>06</b> |
|             | (b) | Enumerate different types of charts. Explain anyone in details.                                 | <b>05</b> |
|             | (c) | What is the importance of control charts in pharmaceutical processings.                         | <b>05</b> |
| <b>Q.4</b>  | (a) | Explain the concept of supercritical fluids.  | <b>06</b> |
|             | (b) | What is Rapid Expansion of Supercritical Solution (RESS) technique?                             | <b>05</b> |
|             | (c) | Explain various processes and equipments used in supercritical fluid application.               | <b>05</b> |
| <b>Q.5</b>  | (a) | What do you understand by pellets. Give factors affecting pellet properties.                    | <b>06</b> |
|             | (b) | Explain different types of extrusion processes and techniques for spheronization.               | <b>05</b> |
|             | (c) | Discuss the various excipients used in pelletization techniques.                                | <b>05</b> |
| <b>Q. 6</b> | (a) | Write a note on requirements of regulatory agencies (FDA, USP, EP) for content uniformity.      | <b>06</b> |
|             | (b) | Write a note on particle size and particle size distribution.                                   | <b>05</b> |
|             | (c) | Explain Carr’s Index / Compressibility index and give the pharmacopoeial specifications for it. | <b>05</b> |
| <b>Q.7</b>  | (a) | What is the significance of addition of glidants / lubricants / anti-adherents?                 | <b>06</b> |
|             | (b) | Write a note on “shape transition during spheronization”.                                       | <b>05</b> |
|             | (c) | What are the advantages and limitations of Carbon dioxide as SCF?                               | <b>05</b> |

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