

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM – SEMESTER – 1- EXAMINATION –WINTER - 2018**

**Subject Code:2210001**

**Date: 01/01/2019**

**Subject Name: Unit Operation-I**

**Time:10:30 AM TO 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.**

|             |                                                                                                                |           |
|-------------|----------------------------------------------------------------------------------------------------------------|-----------|
| <b>Q.1</b>  | <b>(a)</b> Explain the mechanisms of size reduction.                                                           | <b>06</b> |
|             | <b>(b)</b> Give principle and construction of hammer mill.                                                     | <b>05</b> |
|             | <b>(c)</b> Discuss importance of correct speed in operation of ball mill and write disadvantages of ball mill. | <b>05</b> |
| <b>Q.2</b>  | <b>(a)</b> What is screening of powders? Write grades of powder in brief according to IP.                      | <b>06</b> |
|             | <b>(b)</b> Discuss principle, working, advantages and disadvantages of the sieve shaker machine.               | <b>05</b> |
|             | <b>(c)</b> Give major applications of size reduction of drug substances.                                       | <b>05</b> |
| <b>Q.3</b>  | <b>(a)</b> Write a short note on cyclone separator.                                                            | <b>06</b> |
|             | <b>(b)</b> Explain term mixing and give mechanisms of mixing in solids.                                        | <b>05</b> |
|             | <b>(c)</b> Discuss the factors affecting mixing of solids.                                                     | <b>05</b> |
| <b>Q.4</b>  | <b>(a)</b> Explain construction, advantages, disadvantages and applications of double cone blender.            | <b>06</b> |
|             | <b>(b)</b> Write a note on planetary mixer.                                                                    | <b>05</b> |
|             | <b>(c)</b> Explain the term crystallization and give it's major applications.                                  | <b>05</b> |
| <b>Q.5</b>  | <b>(a)</b> Describe theory of crystallization in brief.                                                        | <b>06</b> |
|             | <b>(b)</b> Draw Mier's Solubility Curve and explain it in brief.                                               | <b>05</b> |
|             | <b>(c)</b> Write a brief note on Krystal crystallizer.                                                         | <b>05</b> |
| <b>Q. 6</b> | <b>(a)</b> Give theory and types of extraction.                                                                | <b>06</b> |
|             | <b>(b)</b> Write in brief on super critical fluid extraction.                                                  | <b>05</b> |
|             | <b>(c)</b> Discuss elements of automatic process control systems in brief.                                     | <b>05</b> |
| <b>Q.7</b>  | <b>(a)</b> Enumerate various process variables and write measurement of any one of them in automated process.  | <b>06</b> |
|             | <b>(b)</b> Discuss the chemical hazards and its prevention in pharmaceutical industries.                       | <b>05</b> |
|             | <b>(c)</b> Discuss waste water management system in industries.                                                | <b>05</b> |

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