

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:3173625****Date:14/06/2022****Subject Name:Process Technology of Drugs and Intermediates and Nanotechnology****Time:02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

| | | MARKS |
|------------|--|--------------|
| Q.1 | (a) What are super critical solvents? Give an example. What are the advantages & disadvantages of super critical solvents? | 03 |
| | (b) Draw a neatly labeled structure of micelle and briefly explain. | 04 |
| | (c) Explain the quality control tests for nanoparticles. | 07 |
| Q.2 | (a) Write the applications of nanotechnology in pharmaceutical field. | 03 |
| | (b) Discuss the steps to be taken for optimizing the mesylation of Propargylic alcohol | 04 |
| | (c) List out the classifications of nanoparticles and explain them. | 07 |
| OR | | |
| | (c) Explain spray drying method with neat labeled diagram for nanoparticles formulation | 07 |
| Q.3 | (a) What are residual solvents? Based on the risk factor, write their classifications. | 03 |
| | (b) Describe Simulated Moving Bed Chromatography with a neatly labeled diagram. | 04 |
| | (c) Explain the techniques for identifying exothermicity & gas evolution | 07 |
| OR | | |
| Q.3 | (a) For choosing the right filtration equipment, what are the factors to be considered? | 03 |
| | (b) Discuss briefly the safety considerations in Process designing. | 04 |
| | (c) Describe two methods of resolution of racemates by direct crystallization with suitable examples. | 07 |
| Q.4 | (a) Define adsorption. Write the theory & factors affecting adsorption. | 03 |
| | (b) Describe process safety failures and the consequences. | 04 |
| | (c) What are the factors for choosing solvents? Explain any five of them. | 07 |
| OR | | |
| Q.4 | (a) Write short notes on ultrafiltration & microfiltration. | 03 |
| | (b) List out the steps to be taken for process optimization. | 04 |
| | (c) Write a brief notes on: (i). Marckwald principle & Reciprocal resolutions with example, (ii). Chiral auxiliary and the use of it with schematic diagram. | 07 |
| Q.5 | (a) Define nanoparticles and write the advantages and disadvantages of nanoparticles. | 03 |
| | (b) Explain the zeta potential and particle size determination for nanoparticles. | 04 |
| | (c) Describe the Top down & the Bottom up approaches in fabrication of nanoparticles. | 07 |

OR

- Q.5** (a) Write a brief note on Dendrimers with a neatly labeled diagram and give its applications. **03**
- (b) Write a note on Gold particles and their applications in the Pharmaceutical field. **04**
- (c) List out the preparatory methods of nanoparticles. Explain any three of them. **07**
