

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022****Subject Code:3173625****Date:16-01-2023****Subject Name:Process Technology of Drugs and Intermediates and Nanotechnology****Time:10:30 AM TO 01:00 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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Define the term: Hydrogel nanoparticle.	<b>03</b>
	(b) Write a brief note on Marckwald principle & Reciprocal resolutions with example.	<b>04</b>
	(c) List out the factors for choosing solvents. Describe any six of them.	<b>07</b>
<b>Q.2</b>	(a) Write applications of nanotechnology in pharmaceutical field.	<b>03</b>
	(b) What are super critical solvents? What are the advantages & disadvantages of super critical solvents?	<b>04</b>
	(c) List out the factors to be considered while choosing a filtration equipment. Describe any two filtration equipment with neatly labeled diagrams.	<b>07</b>
<b>OR</b>		
	(c) Describe the characterization tests for nanoparticles.	<b>07</b>
<b>Q.3</b>	(a) What are Gold nanoparticles? What are the applications of Gold nanoparticles?	<b>03</b>
	(b) Discuss the steps to be taken for optimizing the mesylation of Propargylic alcohol	<b>04</b>
	(c) Explain spray drying method with neat labeled diagram for nanoparticles formulation.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Draw a neatly labeled structure of micelle and briefly explain.	<b>03</b>
	(b) Describe any one method of resolution of racemates by direct crystallization with suitable examples.	<b>04</b>
	(c) What are micelles? Write its applications & advantages in pharmaceutical drug delivery.	<b>07</b>
<b>Q.4</b>	(a) Explain super critical fluid technology.	<b>03</b>
	(b) What is a “reagent”? Discuss the properties to be considered while selecting a reagent.	<b>04</b>
	(c) Explain the Use of Calorimetry in addressing reaction safety. Illustrate with examples.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Write a short note on SMB (simulated moving bed chromatography).	<b>03</b>
	(b) Define chiral auxiliary. Describe the use of chiral auxiliary with a schematic diagram. Write one example of the use of chiral auxiliary.	<b>04</b>

- (c) Discuss the steps to be taken for the optimization of process. Illustrate with example. **07**
- Q.5** (a) Differentiate between nanoparticles & micro particles. **03**  
(b) Write a note on Phase transfer catalyst. What are the factors to be considered while choosing a Phase Transfer Catalyst (PTC) & how selectivity in PTC can be achieved? **04**
- (c) Explain the quality control tests for nanoparticles. **07**
- OR**
- Q.5** (a) Define Dendrimers and give its applications. **03**  
(b) Explain the selection criteria for resolving agents. **04**  
(c) Write a note on Top down and Bottom up technology for nanoparticle generation. **07**

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