Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2023

Subject Code:3173625 Date:01-12-2023

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**

			MARKS
Q.1	**(a)**	What are super critical solvents? Give an example.	**03**
	(b)	Describe Residual solvents with its classifications.	**04**
	(c)	Discuss Top down and bottom-up approaches in nanoparticle synthesis.	**07**
Q.2	**(a)**	What are Dendrimers?	**03**
	(b)	What are gold nanoparticles? Give its applications.	**04**
	(c)	What are the selection criteria for solvent selection?	**07**
		OR	
	(c)	List out the classifications of nanoparticles and explain them.	**07**
Q.3	**(a)**	Differentiate Nanoparticles and Micro particles.	**03**
	(b)	What are micelles and liposomes?	**04**
	(c)	Explain spray drying method with neat, labeled diagram.	**07**
		OR	
Q.3	**(a)**	Define solid lipid nanoparticles & polymeric nanoparticles.	**03**
	(b)	Describe the zeta potential and particle size determination for nanoparticles.	**04**
	(c)	Explain Sol gel method with neat, labelled diagram.	**07**
Q.4	**(a)**	Define: Nanocapsule & Nanospheres.	**03**
	(b)	Describe supercritical fluid technology in nanoparticle preparation.	**04**
	(c)	Explain the techniques for identifying exothermicity & gas evolution.	**07**
		OR	
Q.4	**(a)**	Give the applications of :(1) Solid-Lipid nanoparticle (2) Ceramic nanoparticle, (3) Gold nanoparticle	**03**
	(b)	Write short notes on ultrafiltration & microfiltration.	**04**
	(c)	What are the selection criteria for filtration equipment?	**07**
Q.5	**(a)**	What is a “reagent”? Discuss the properties to be considered while selecting a reagent.	**03**
	(b)	List out the preparative methods for polymeric nanoparticles. Explain any one of them.	**04**
	(c)	Describe the Process safety failures and its consequences.	**07**
		OR	
Q.5	**(a)**	Write a note on Phase transfer catalyst.	**03**
	(b)	What are the factors to be considered while choosing a Phase Transfer Catalyst (PTC) & how selectivity in PTC can be achieved?	**04**
	(c)	Define chiral auxiliary with example. Describe the use of chiral auxiliary with a schematic diagram.	**07**

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