

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2024****Subject Code:3173625****Date:15-05-2024****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) Explain the particle size determination technique used for nanoparticles.	04
	(c) List out the factors for choosing solvents. Describe any six of them.	07
Q.2	(a) Define Dendrimer and give its applications.	03
	(b) Define Ceramic nanoparticle & polymeric nanoparticles.	04
	(c) List out the factors to be considered while choosing a filtration equipment. Describe any two filtration equipment with neatly labeled diagrams.	07
OR		
	(c) Explain spray drying method with neat labeled diagram for nanoparticles formulation.	07
Q.3	(a) What are Gold nanoparticles? What are the applications of Gold nanoparticles?	03
	(b) Describe any one method of resolution of racemate by direct crystallization with suitable examples.	04
	(c) Enlist the different properties of nanoparticles.	07
OR		
Q.3	(a) Draw a neatly labeled diagram of micelle and explain in detail.	03
	(b) Discuss the steps to be taken for optimizing the mesylation of Propargylic alcohol.	04
	(c) Write the applications of nanotechnology in Pharmaceutical field.	07
Q.4	(a) Write a short note on simulated moving bed chromatography.	03
	(b) Describe the use of chiral auxiliary with a schematic diagram. Write one example of the use of chiral auxiliary.	04
	(c) Discuss the steps to be taken for the optimization of process. Illustrate with example.	07
OR		
Q.4	(a) Explain super critical fluid technology in detail.	03
	(b) What is a “reagent”? Discuss the properties to be considered while selecting a reagent.	04
	(c) Describe: (1). Process safety failures and the consequences, (2). Definition, Theory and Factors affecting Adsorption	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**
