

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3173625****Date:17/12/2021****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) Define Nanoparticles. Write the applications of Nanotechnology in Pharmaceutical field.	03
	(b) Define Residual solvents. Write a note on the classifications of residual solvents based on the risk factors.	04
	(c) Explain in detail: Top down and bottom up approaches in nanoparticle generation.	07
Q.2	(a) Define Dendrimer and give its applications.	03
	(b) What are Gold nanoparticles? What are the applications of Gold nanoparticles?	04
	(c) List out the factors for choosing solvents. Describe any six of them.	07
OR		
	(c) Explain the Use of Calorimetry in addressing reaction safety. Illustrate with examples.	07
Q.3	(a) Differentiate Nanoparticles and Microparticles.	03
	(b) What are micelles? Write its applications & advantages in pharmaceutical drug delivery.	04
	(c) Describe the characterization tests for nanoparticles.	07
OR		
Q.3	(a) Define solid lipid nanoparticles & polymeric nanoparticles	03
	(b) Explain the zeta potential and particle size determination for nanoparticles.	04
	(c) Explain spray drying method with a neatly labeled diagram for nanoparticles formulation	07
Q.4	(a) What are Nanocapsule & Nanospheres. Draw their structures.	03
	(b) Write the advantages & disadvantages of nanoparticles. Write a note on supercritical fluid technology in nanoparticle preparation.	04
	(c) Describe two methods of resolution of racemates by direct crystallization with suitable examples.	07
OR		
Q.4	(a) Define: (1). Hydrogel nanoparticle, (2). Ceramic nanoparticle, (3). Functionalized nanoparticle	03
	(b) List out the preparative methods for polymeric nanoparticles. Explain any one of them	04
	(c) List out the factors to be considered while choosing a filtration equipment. Describe any two filtration equipment with neatly labeled diagrams.	07
Q.5	(a) What is a “reagent”? Discuss the properties to be considered while selecting a reagent	03
	(b) Write a brief note on Marckwald principle & Reciprocal resolutions with example	04

- (c) Describe: (1). Process safety failures and the consequences, (2). Definition, Theory and Factors affecting Adsorption **07**

OR

- Q.5** (a) 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? **03**
- (b) Define chiral auxiliary. 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**
