Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII(NEW) EXAMINATION – SUMMER 2019

Subject Code:2182309/2182312 **Date:13/05/2019**

Subject Name:Nano Polymer Technology

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.**

			MARKS
Q.1	**(a)**	Define Nanotechnology.	**03**
	(b)	List advantages of Nanotechnology.	**04**
	(c)	Short a note on- Nanostructured Materials	**07**
Q.2	**(a)**	Give full form of SWNT and MWNT.	**03**
	(b)	Explain importance of SWNT and MWNT.	**04**
	(c)	What is high shear mixing? Explain in detail	**07**
		OR	
	(c)	Write a note on small angle X ray diffraction.	**07**
Q.3	**(a)**	Write a note on Mass Loss Calorimetry (MLC)	**03**
	(b)	State the difference between exfoliated and intercalated.	**04**
	(c)	Write a short note on Energy-dispersive x-ray spectroscopy (EDS).	**07**
		OR	
Q.3	**(a)**	Write about the processing methods for nanoparticles and classify them.	**03**
	(b)	Differentiate between Thermoplastic and Thermosetting Resin Characteristics.	**04**
	(c)	Write the manufacturing process, properties and application of carbon nanofibers.	**07**
Q.4	**(a)**	Draw with proper labeling and explanation the Anatomy of a POSS molecule.	**03**
	(b)	Write about the classification of carbon nanotubes.	**04**
	(c)	Write the origin, properties and application of carbon nanosilica.	**07**
		OR	
Q.4	**(a)**	Explain the term “In-situ polymerization”	**03**
	(b)	List various techniques to characterize polymeric Nanomaterials.	**04**
	(c)	Explain what Nanoaluminum oxide is?	**07**
Q.5	**(a)**	Write about the processing methods for nanoparticles and classify them.	**03**
	(b)	Explain importance of nano technology in plastic field.	**04**
	(c)	Explain Transmission Electron Microscopy with proper diagram.	**07**
		OR	
Q.5	**(a)**	Write a note on Small-diameter carbon nanotubes (SDNTs).	**03**
	(b)	State the functions of polymer Nanostructured materials.	**04**
	(c)	Write a note on Non-halogenated, flame-retardant polymers for cabling jackets.	**07**

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