Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2142306 **Date:01/06/2016**

Subject Name:Manufacturing of plastics Material-2

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		**Short Questions**	**14**
	1	What is "Auto acceleration"?	
	2	Define addition Polymerization. Give example of polymer formed by addition polymerization process.	
	3	What is Chain Transfer Agent?	
	4	Define inhibitor.	
	5	What is Critical Micelle concentration?	
	6	Give different examples of Initiator used in polymerization process.	
	7	What is Absorption?	
	8	In Emulsion Polymerization process, Initiator is soluble in_____ medium.	
	9	Which polymerization process provides highest purity of Polymer?	
	10	Which process is used in polymerization of low density and high density polyethylene?	
	11	State the two combinations of catalyst and co-catalyst in Ziegler-Natta Catalyst.	
	12	Give the example of Ter-Polymer.	
	13	The Addition polymerization reaction is which type of reaction? (Exothermic/Endothermic) while, Step polymerization process is which type of reaction? (Exothermic/Endothermic)	
	14	What is density of LDPE and HDPE material?	
Q.2	**(a)**	State different applications for PS material including its different derivative types.	**03**
	(b)	State detailed properties and applications for PVC material.	**04**
	(c)	Draw a neat Polymer Plant Layout for Polymer Manufacturing Industry.	**07**
		OR	
	(c)	Explain the complete manufacturing process for LDPE and HDPE.	**07**
Q.3	**(a)**	Give monomer purification process for PS.	**03**
	(b)	State properties and application for PTFE.	**04**
	(c)	Explain Ziegler-Natta process for PP manufacturing.	**07**
		OR	
Q.3	**(a)**	Give monomer preparation process for PS.	**03**
	(b)	Give properties and application for PP.	**04**
	(c)	Explain Tower Process for PS manufacturing with neat sketch.	**07**
Q.4	**(a)**	Provide chemical structure for PAN, SAN, ABS.	**03**

	(b)	Provide properties and application for PTFE.	**04**
	(c)	Explain manufacturing process for Nylon-66	**07**
		OR	
Q.4	**(a)**	Explain Bulk polymerization process in detail.	**03**
	(b)	Provide properties and application for PET.	**04**
	(c)	Explain Manufacturing process for PVC material in detail.	**07**
Q.5	**(a)**	Provide chemical structure for PET, PTFE and PEEK	**03**
	(b)	Define Distillation, Stripping, Leaching and Crystallization.	**04**
	(c)	Explain Manufacturing process for Nylon-6	**07**
		OR	
Q.5	**(a)**	State advantages and disadvantages for Engineering thermoplastics in general.	**03**
	(b)	Give properties and application for PEEK	**04**
	(c)	Provide monomer preparation and polymerization steps for PTFE.	**07**

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