Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2132301 **Date:02/06/2016**

Subject Name:Introduction to Plastic Material Science

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	Define: Polymer	
	2	Write the structure of PP.	
	3	Suspension polymerisation is also called _____ polymerisation.	
	4	Give the functionality of NH_2-$(CH_2)_6$-NH_2.	
	5	Give two examples of Inorganic polymers.	
	6	What is glass transition temperature.	
	7	What is the molecular weight of polyethylene if the no.of repeating units is 1000.	
	8	Define homochain polymer.	
	9	We get the purest form of polymer by _____ polymerisation technique.	
	10	Miscelle formation happens in _____ polymerisation technique.	
	11	What is polydispersity?	
	12	Give the full form of PVC & PS.	
	13	Define Addition Polymerisation.	
	14	What is Degree of Polymerisation.	
Q.2	**(a)**	Define initiators? Give examples of initiators used for free radical polymerisation.	**03**
	(b)	Explain homochain & heterochain polymers.	**04**
	(c)	Explain linear, branched and cross linked polymer with suitable example.	**07**
		OR	
	(c)	Differentiate between polymer & low molecular weight.	**07**
Q.3	**(a)**	State any three points of difference between crystalline and amorphous polymerisation.	**03**
	(b)	Compare thermoplastics & thermosets.	**04**
	(c)	What is isomerism? Explain stereoisomerism & geometric isomerism with the help of examples.	**07**
		OR	
Q.3	**(a)**	What are organic & inorganic polymers. Explain giving examples.	**03**
	(b)	What are spherulites. Explain them briefly.	**04**
	(c)	Explain coordination polymerisation technique.	**07**
Q.4	**(a)**	What is functionality? List the types of functional groups giving examples.	**03**
	(b)	Explain the relation between Tg & molecular weight.	**04**

	(c)	Explain Free Radical polymerisation technique.	**07**
		OR	
Q.4	**(a)**	What are inhibitors? Where are they used.	**03**
	(b)	List points of difference between chain & step polymerisation.	**04**
	(c)	Explain the emulsion polymerisation technique.	**07**
Q.5	**(a)**	What are Natural polymers. State examples of natural polymers.	**03**
	(b)	Explain the factors affecting glass transition temperature.	**04**
	(c)	Explain the bulk polymerisation technique.	**07**
		OR	
Q.5	**(a)**	Write a short note on tacticity in polymers.	**03**
	(b)	Explain hydrolysis and acidolysis of polymers.	**04**
	(c)	Define crystallinity. Explain about effect of crystallinity on properties of polymers.	**07**

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