Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2015

Subject Code:2132302 Date:21/12/2015

Subject Name: Manufacturing of Plastic Materials-1

Time: 2:30pm to 5:00pm 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: Monomer	1
	2	Name a thermoset polymer used for electrical fittings.	1
	3	What is initiator?	1
	4	Novolac and Resol are types of _____ resin.	1
	5	Define: Polymer	1
	6	Which polymer is used for making plastic crockery?	1
	7	Bakelite is a condensation polymer of _____ & _____.	1
	8	Teflon is Thermoset plastic. True/ False.	1
	9	What is B-stage resin?	1
	10	Define: Rheology	1
	11	What is curing?	1
	12	Define: Polymerization	1
	13	What is C-stage Resin?	1
	14	Which raw materials are used to prepare PU?	1
Q.2	**(a)**	Discuss Linear, Branched and crosslinked polymers.	**03**
	(b)	Explain manufacturing of Melamine formaldehyde.	**04**
	(c)	How phenol and formaldehyde monomers are prepared? Explain.	**07**
		OR	
	(c)	Differentiate between thermosetting and thermoplastic behavior of polymers.	**07**
Q.3	**(a)**	Write about preparation of Urea monomer.	**03**
	(b)	Give properties and applications of epoxy resin.	**04**
	(c)	Explain Naphtha cracking process with neat diagram.	**07**
		OR	
Q.3	**(a)**	Give properties and applications of silicone resin.	**03**
	(b)	Draw Layout and arrangement of plastic material manufacturing plant.	**04**
	(c)	Write about manufacturing of Polyurethane resin.	**07**
Q.4	**(a)**	Differentiate between Novolac and Resol resin.	**03**
	(b)	Write properties and applications of Polyurethane.	**04**
	(c)	Which raw materials are used for preparation of epoxy resin? Explain manufacturing of Epoxy resin.	**07**
		OR	
Q.4	**(a)**	Give application of Urea formaldehyde and Melamine formaldehyde resin.	**03**

	(b)	Discuss Bisphenol-A monomer preparation for epoxy resin.	**04**
	(c)	Explain manufacturing process for phenol formaldehyde resin.	**07**
Q.5	**(a)**	Explain Bulk polymerization technique.	**03**
	(b)	Give properties and application for Unsaturated polyester resin.	**04**
	(c)	Explain manufacturing process for Silicon.	**07**

OR

Q.5	**(a)**	Give properties and applications of Phenol formaldehyde resin.	**03**
	(b)	Give properties of Urea Formaldehyde and Melamine formaldehyde resins.	**04**
	(c)	Explain manufacturing process for Unsaturated Polyester resin along with curing reaction.	**07**

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