Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(New) • EXAMINATION – WINTER 2016

Subject Code:2132302 **Date:04/01/2017**

Subject Name:Manufacturing of Plastic Materials-1

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	Thermosetting plastics are generally stronger than thermoplastics due to their three dimensional cross linked network (True or False)	
	3	The first fully synthetic plastic invented by Leo Backeland was _____.	
	4	What are A-Stage resins?	
	5	Give two names of Thermoplastic materials.	
	6	Give the chemical formula for phenol.	
	7	Which thermoset plastic material is widely used to make crockery and dinnerware?	
	8	What is rheology?	
	9	Which of the following is a thermoset? a) Nylon b) Polycarbonate c) Ebonite d) polystyrene.	
	10	Define curing of thermoset plastics.	
	11	What is B-stage resin?	
	12	Give the chemical formula of Ethylene.	
	13	What is C-stage resin?	
	14	Epoxy resin is manufactured from _____ & _____ monomers.	
Q.2	**(a)**	Explain about linear, branched and crosslinked structures in polymers.	**03**
	(b)	List the properties of epoxy resin.	**04**
	(c)	Differentiate between properties of thermoplastics and thermosets.	**07**
		OR	
	(c)	Write short note on : novolacs and resols.	**07**
Q.3	**(a)**	List the properties of silicon.	**03**
	(b)	List the applications of urea formaldehyde.	**04**
	(c)	Explain the naptha cracking process with a neat diagram.	**07**
		OR	
Q.3	**(a)**	List the applications of epoxy resin.	**03**
	(b)	Explain the manufacturing of silicon resin.	**04**
	(c)	Explain the preparation of melamine formaldehyde resin with a flow diagram.	**07**
Q.4	**(a)**	List the applications of polyester resin.	**03**
	(b)	Write the chemical reactions for formation of phenol and formaldehyde monomers.	**04**
	(c)	Explain the manufacturing of Epoxy resin.	**07**
		OR	
Q.4	**(a)**	List the applications of silicon.	**03**

	(b)	List the properties of polyurethane resin.	**04**
	(c)	Explain the manufacturing of urea formaldehyde with a flow diagram.	**07**
Q.5	**(a)**	List the properties of polyester resins.	**03**
	(b)	List the applications of melamine formaldehyde resin.	**04**
	(c)	Explain the preparation of polyurethane resin.	**07**

OR

Q.5	**(a)**	List the properties of melamine formaldehyde resin.	**03**
	(b)	List the applications of polyurethane resin.	**04**
	(c)	Explain the preparation of unsaturated polyester resin.	**07**

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