Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI EXAMINATION – WINTER 2015

Subject Code:162605 **Date:10/12/2015**

Subject Name: Thermoplastic Elastomers & Polymer Blends

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.**

Q. 1	**Answer the following.**		**(14)**
	(i)	**Define the term Teleblocks.**	
	(ii)	**State the role of Chain extender in Thermoplastic Polyurethane Elastomer.**	
	(iii)	**Give the difference between Hard segment and Soft segment for TPE.**	
	(iv)	**What are the full name of PTMEG and 4-GT?**	
	(v)	**Write the importance of melt flow index (MFI) for Thermoplastic Elastomer.**	
	(vi)	**What do you mean by Dynamic vulcanisation?**	
	(vii)	**Give the melting point range and degree of crystallinity in 1, 2-Polybutadiene Thermoplastic Elastomers.**	
Q. 2	**(a)**	**'The largest application area for the Polyolefin thermoplastic elastomer is in the Automotive Market.' Justify in detail.**	**(07)**
Q. 2	**(b)**	**Discuss the blending methods used to prepare a speciality TPE compound.**	**(07)**
		OR	
	(b)	**Write the advantages & processing comparisons of TPEs & Conventional Rubbers.**	**(07)**
Q. 3	**(a)**	**Explain about the problems occurred during extrusion process of Thermoplastic Polyurethane. State their causes and remedies.**	**(07)**
	(b)	**Short note on: "NBR- PVC blends".**	**(07)**
		OR	
Q. 3	**(a)**	**Discuss the characteristics of Thermoplastic Polyurethane Elastomer.**	**(07)**
	(b)	**Discuss the effect of curatives, plasticisers & elastomer characteristics on NBR-Nylon thermoplastic elastomer composition.**	**(07)**
Q. 4	**(a)**	**Explain in detail about structure & monomer ratio of Block Polymers with examples & write the effects of these on properties.**	**(07)**

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	(b)	**Describe the chemistry of Polyester Thermoplastic elastomer.**	**(07)**
		OR	
Q. 4	**(a)**	**Explain the compounding, manufacturing process and properties of shoe sole products.**	**(07)**
	(b)	**Discuss in detail about Polyester-PVC blend compound.**	**(07)**
Q. 5	**(a)**	**Short note: "Ethylene – Vinyl Acetate Copolymers"**	**(07)**
	(b)	**List the typical factors to determine in evaluation requirements of a TPE & also write sequence for developing a TPE compound for a specific application.**	**(07)**
		OR	
Q. 5	**(a)**	**Discuss in detail about Silicone – Polyethylene blend.**	**(07)**
	(b)	**Explain the processing. Properties and application of 1, 2-polybutadiene thermoplastic Elastomer.**	**(07)**

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