Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER-VIII • EXAMINATION – SUMMER- 2015

Subject Code: 182302 **Date: 11/05/2015**

Subject Name: Plastics Alloys & Blends

Time:10.30am-01.00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the need and significance of polymer blending in detail. How mixing and compounding differ?	**07**
	(b)	Explain the working of a Twin screw extruder in polymer mixing, with neat sketches.	**07**
Q.2	**(a)**	Describe the working Banbury mixture with neat sketches and explain the advantages over other blending techniques.	**07**
	(b)	What is meant by polymer reactive blending? How it differ from conventional blending?	**07**
		OR	
	(b)	Explain the role phase diagrams in polymer blend characterization, give examples.	**07**
Q.3	**(a)**	Describe the working of Two roll mills in polymer mixing. Make neat diagrams showing the working.	**07**
	(b)	Describe the selection of mixing equipments and process, Explain the major mixing theories used in polymer mixing.	**07**
		OR	
Q.3	**(a)**	How DSC-Differential Scanning Calorimetry works in polymer characterization.	**07**
	(b)	Describe the structure, properties and applications of NR/BR blends.	**07**
Q.4	**(a)**	What is meant by HIPS? How it is prepared and how it is differ from other polymer blends in the mechanism.	**07**
	(b)	Which is major polymer blends used in an automobile tyre industry? How it is working?	**07**
		OR	
Q.4	**(a)**	What is the role of polymer blends in cable industry; explain with their properties and application.	**07**
	(b)	Explain the working of Scanning electron microscope (SEM) with it significance and application in polymer blending.	**07**

Q.5	**(a)**	Explain the Florry –Huggin's theory for polymer blending.	**07**
	(b)	Describe the significance, structure, properties and applications of a polymer blend of PC /ABS.	**07**

OR

Q.5	**(a)**	Describe the polymer characterization methods in general and specifically explain UV spectrum and its applications	**07**
	(b)	Describe the properties of a blend which contain elastomer and thermoplastics NBR/ PVC and explain how it is differ from other blends.	**07**

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