Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 163602 **Date: 26-05-2014**

Subject Name: Compounding and Processing Of Plastics and Rubber-I

Time: 10:30 am - 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.**

Q.1	**(a)**	Explain the extrusion process with well-labeled diagram.	**07**
	(b)	What is calendaring? Explain "L" shape calendar and inverted "L" shape calendar with suitable diagram.	**07**
Q.2	**(a)**	What is thermoforming? Explain the pressure forming and vacuum forming.	**07**
	(b)	What is compounding? Explain the mixing theory of compounding.	**07**
		OR	
	(b)	Define and explain the following terms:	
		1. Masterbatch	**04**
		2. Die swelling	**03**
Q.3	**(a)**	What is filler? Explain the different types of fillers with its function.	**07**
	(b)	Explain the extrusion process of pipe and tubing.	**07**
		OR	
Q.3	**(a)**	What is processing aids? Explain its mechanism and action during processing of polymers.	**07**
	(b)	Write short notes on antistatic additives and flame-retardants.	**07**
Q.4	**(a)**	Explain the extrusion process for films.	**07**
	(b)	Define paint? Explain the different ingredients of paint.	**07**
		OR	
Q.4	**(a)**	Write a short note on:	
		1. % volume solid of paint film	**02**
		2. Coverage rate of paint film	**02**
		3. Pigment volume concentration	**03**
	(b)	What is pigment? Explain the manufacturing, properties and application of titanium dioxide.	**07**
Q.5	**(a)**	Explain the working and advantages of high-speed mixer.	**07**
	(b)	Explain different problems occur in extrusion process with its remedies.	**07**
		OR	
Q.5	**(a)**	Explain black pigment with its properties and application.	**07**
	(b)	What is rheology? Explain the importance of rheology during processing.	**07**

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