Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 712404N **Date: 10-01-2013**

Subject Name: Additive & Compounding of Plastics

Time: 02.30 pm – 05.00 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 Compounding for modifying surface properties	**07**
	(b)	Explain the action of antioxidants on plastics	**07**
Q.2	**(a)**	Explain various compounding Techniques for thermoplastics with their advantages and disadvantages	**07**
	(b)	Write a note on blowing agents with examples.	**07**
		OR	
	(b)	Explain how a thermoplastic get toughened	**07**
Q.3	**(a)**	Plasticizer and heat Stabilizer make PVC a versatile material. Explain this in detail with suitable example.	**07**
	(b)	What is the mechanism of Flame retardancy? Which polymers require flame retardancy? How is the flame retardancy achieved?	**07**
		OR	
Q.3	**(a)**	Write any four additives that assist processing, explain their function and benefits	**07**
	(b)	Elaborate their chemistry and mechanism	**07**
Q.4	**(a)**	What are the methods available for incorporation of additive into polymer materials	**07**
	(b)	Explain the limitations of mixing and compounding	**07**
		OR	
Q.4	**(a)**	Draw a schematic diagram of an intensive mixer, indicating the various parts. Explain their functions and applications	**07**
Q.4	**(b)**	Explain various compounding techniques used for PVC.	**07**
Q.5	**(a)**	Brief on the principle of material selection used for bowls for microwave oven	**07**
	(b)	Mention a few applications of plastics in agriculture	**07**
		OR	
Q.5	**(a)**	Discuss the application of plastics in packaging with significance	**07**
	(b)	How do you select the materials for manufacturing Plastic Gears? Explain with example.	**07**

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