Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 712404N **Date: 30-12-2013**

Subject Name: Additives and Compounding of Plastics

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)**	What are additives? How do you classify additives accordingly to their desired functions? Explain.	**07**
	(b)	What are lubricants? Explain the role of internal and external lubricants with suitable examples.	**07**
Q.2	**(a)**	What is plasticizer? How it works on polymer. Explain with mechanism.	**07**
	(b)	What are the roles of primary and secondary antioxidants used in polymers? Explain the mechanism of antioxidant in polymers.	**07**
		OR	
	(b)	What are the roles of fillers and reinforcement in polymers? Explain with examples.	**07**
Q.3	**(a)**	Which additive is used for making cellular structure of plastics parts? Discuss with examples.	**07**
	(b)	Write short notes on (i) Impact modifiers (ii) Anti-static additives.	**07**
		OR	
Q.3	**(a)**	What is the function of the nucleating agent? How is it useful for controlling crystalline structure of PP?	**07**
	(b)	Write a note on: Additives for Recycling.	**07**
Q.4	**(a)**	Explain Distributive mixing and Dispersive mixing with examples.	**07**
	(b)	Explain the functions of High speed mixer with neat diagram.	**07**
		OR	
Q.4	**(a)**	Explain PVC compounding using two roll mill along with its advantages and limitations.	**07**
	(b)	What are stabilizers? Explain the mechanism of action of light stabilizers in polymers.	**07**
Q.5	**(a)**	Give difference between Single screw extruder and Twin screw extruder.	**07**
	(b)	Explain principle, machine construction and working details of Banbury Mixer.	**07**
		OR	
Q.5	**(a)**	Discuss the applications of plastics in medical industry with significance.	**07**
	(b)	Discuss the merits and demerits of phthalate plasticizers used in plastics, particularly in relation to medical products.	**07**

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