Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-Vth Examination December 2010

Subject code: 152303
Subject Name: Plastics Recycling and Waste Treatment

Date: 16 /12 /2010 **Time: 03.00 pm - 05.30 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)**	Discuss the 3 basic guidelines for waste management. Explain the terms- a) Virgin plastics, b) Recyclate Plastics and c) Reclaimed materials.	**07**
	(b)	Define the terms a) Mechanical Recycling, b) feed stock Recycling and c) Energy Recovery from Plastic waste. Discuss the interrelationship affecting recycling activity with the help of a neat diagram.	**07**
Q.2	**(a)**	Give the general applications of 5 thermoset materials. List various additives and their purpose in recycling of plastics.	**07**
	(b)	Discuss the effect of Physical and Chemical changes on processing of thermoplastics.	**07**
		OR	
	(b)	Write short notes on a) Contaminants, b) Compatibilisers	**07**
Q.3	**(a)**	Discuss "Testing the effect of stabilizers including Heat Stability and Light Stability"	**07**
	(b)	Discuss various Stabilisres for recycled plastics	**07**
		OR	
Q.3	**(a)**	Explain "Modifying the properties of plastics through incorporation of miscellaneous additives"	**07**
	(b)	Discuss the term "Chemical Recycling of Polymers."	**07**
Q.4	**(a)**	Explain in short about the important thermal conversion technologies of recycled plastics.	**07**
	(b)	Write short notes on a) Process stream for recycled plastics materials. b) Sorting of plastics	**07**
		OR	
Q.4	**(a)**	Give the melting point and densities of LDPE, LLDP, HDPE, PP, Polyamide 66, Polyamide 11, Polyamide 12.	**07**
	(b)	Discuss 2 short term mechanical testings and its effect on recycled expanded polystyrene.	**07**
Q.5	**(a)**	Discuss the creation of recycling and recovery infrastructure for plastics	**07**
	(b)	Discuss the plastics waste recovery routes in Europe with the help of line diagram.	**07**
		OR	
Q.5	**(a)**	Give various advantages and disadvantages of recycling and degradation	**07**
	(b)	Write short notes on a) Agglomeration and b) WEEE 2002/96/EC	**07**

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