Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162601 **Date: 19-05-2014**

Subject Name: Rubber Compound and Product Testing

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)**	Discuss in detail about the different methods available for dimension measurement.	**07**
	b)i	Testing is necessary for predicting the product performance-Justify this statement.	**04**
	ii	What do you mean by autoadhesion? List the factors affecting the autoadhesion.	**03**
Q. 2	**a)**	Write down the full form of IRHD. Discuss the hardness measurement of rubber product using IRHD apparatus.	**07**
	b)i	Explain the theory of rebound resilience.	**04**
	ii	Write down the formula to calculate the torsional moduli.	**03**
		OR	
Q. 2	**b)i**	Write about the different types of pendulums used for resilience measurement.	**05**
	Ii	Give the classification of low temperature test.	**02**
Q. 3	**a)i**	Explain different types of grips used to hold the test specimen in Tensile Test.	**04**
	Ii	Which different types of test specimen are used in Tear Test?	**03**
	b)	Discuss in detail about the compression set measurement under constant deflection with its result.	**07**
		OR	
Q. 3	**a)i**	How an elongation measurement is carried out during Tensile Test?	**05**
	Ii	Write down the general deductions which can be made after studying the different methods of Tear Test based on standards.	**04**
	b)	Write in brief about the creep measurement under compression.	**05**
Q. 4	**a)i**	Explain the career gas method to measure the permeability of rubber product.	**05**
	ii	Define the given terms: i)Antistatic Rubber ii) Conductive Rubber	**02**
	b)	How the swelling resistance of rubber product is measured during the immersion of whole specimen in suitable solvent?	**07**
		OR	
Q. 4	**a)i**	Write in brief about an assembly used to measure vapour transmission of rubber with respect to volatile liquid.	**04**
	ii	Explain the terms permittivity and power factor respectively.	**04**
	b)	Describe the factors affecting the swelling resistance of rubber.	**06**
Q. 5	**a)i**	Explain the factors which are to be considered in rate of wear determination.	**05**
	Ii	Why cell type oven ageing is superior than normal oven ageing?	**03**
	b)	How an assessment of flex-cracking test is carried out by using De-Mattia type flex cracking machine?	**06**
		OR	
Q. 5	**a)i**	Explain the types of wear mechanism.	**04**
	Ii	Write about the testing conditions preferred during the ozone ageing.	**04**
	b)	Which testing apparatus is used to determine cut growth resistance of rubber vulcanizate? Explain its construction and working.	**06**

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