Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER 2013

Subject Code: 162601 Date: 24-05-2013

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)**	Explain the general classification of the tests with suitable examples. Also summarize the purpose of testing.	**07**
Q.1	**(b)**	Answer the following	
	i	Write about the various methods available for dimension measurement.	**05**
	ii	Differentiate the tack and adhesion.	**02**
Q.2	**(a)**	What do you mean by micro hardness? Discuss in detail about the micro hardness test.	**07**
Q.2	**(b)**	Answer the following	
	i	How the resilience is measured by falling weight method?	**04**
	ii	Write down the practical significance of low temperature test for rubber product.	**03**
		OR	
Q.2	**(b)**	Answer the following	
	i	List the different pendulums available for resilience measurement. Write about any two.	**05**
	ii	Write down effect of short term temperature and long term temperature respectively on rubber.	**02**
Q.3	**(a)**	Discuss in detail about the tear test.	**07**
Q.3	**(b)**	Answer the following	
	i	Write about the major assembly which is used to measure the compression set under constant load.	**05**
	ii	Why the flexural tests are not usually conducted for rubber?	**02**
		OR	
Q.3	**(a)**	Write about the major assembly which is used to measure the compression set under constant deflection.	**05**
Q.3	**(b)**	Answer the following	
	i	Which systems are available for force measurement during tensile test? Which one is preferable? Why?	**05**
	ii	Explain the concept of simple shear for rubber.	**04**
Q.4	**(a)**	Describe the factors affecting the degree of swelling.	**06**
Q.4	**(b)**	Answer the following	
	i	Explain the following grades of cracks: (i) Grade-A (ii) Grade-B	**04**
	ii	Define the following terms: (i) Volume Resistivity (ii) Surface Resistivity (iii) Insulation Resistance (iv) Tracking Resistance	**04**

OR

Q.4	**(a)**	Give the classification of dynamic fatigue test. Also write about the various bending methods available for rubber products.	**07**
Q.4	**(b)**	Answer the following	
	i	Which generalized points need to be considered when rubber product is exposed to liquid?	**04**
	ii	Write down the formula to calculate the volume resistivity of rubber.	**03**
Q.5	**(a)**	Describe the construction and working of ozone test chamber.	**06**
Q.5	**(b)**	Answer the following	
	i	Write short note abradants.	**04**
	ii	Give the general features related to permeability test.	**04**

OR

Q.5	**(a)**	Write down the procedure to carry out the accelerated ageing of rubber product by heating in air.	**06**
Q.5	**(b)**	Answer the following	
	i	Explain the term wear. Also categorize the wear mechanism.	**05**
	ii	Mention the scope and significance of the vapor transmission of volatile liquid test.	**03**

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