Subject Code: 2162601

Date:22/10/2016

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER - VI (NEW).EXAMINATION - WINTER 2016

Subject Name: Rubber Compound and Product Testing

Time: 10:30 AM to 01:00 PM Total Marks: 70 Instructions:			
	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Explain the generalized classification of physical tests with suitable examples. Also mention the limitations of test results.	07
Q.1	(b) i ii	Answer the following List the basic requirements of testing equipments. How the stress relaxation under compression differs from compression set? Also mention the practical significance of stress relaxation test.	03 04
Q.2	(a) i ii	Answer the following Explain the term 'green strength'. Define the term tack. How the tack measurement is carried out?	02 05
Q.2	(b)	Write a short note on durometer.	07
Q.2	(b)	OR Answer the following	
Q.2	i ii	Answer the following Which points are to be kept in mind during hardness measurement? Which are the different ways to apply indenting force on the vulcanizate? Which one is better? Why?	03 04
		OR	
Q.3	(a)	Discuss in detail about tear test.	07
Q.3	(b) i ii	Answer the following Why flexural strength test is not usually conducted for rubber? Write about the major assembly used to measure the compression set under constant deflection.	02 05
		OR	
Q.3 Q.3	(a) (b)	Write about the major assembly used to measure compression set under constant load. Answer the following	05
Q.S	i ii	Explain the concept of simple shear stress with respect to rubber. Which systems are available for force measurement during tensile test? Which one is preferable? Why?	04 05
Q.4	(a)	Discuss in detail about the factors affecting the degree of swelling.	07
Q.4	(b) i	Answer the following Define the given terms:(i)Insulating Resistance (ii) Tracking Resistance (iii) Volume Resistivity	03
	ii	Write about the given grades of cracks: (i) Grade-A (ii) Grade-B	04
		OR	
Q.4	(a)	Give the classification of dynamic fatigue test. Also write about various bending methods available for rubber products.	07

Q.4	(b) i ii	Answer the following Write down the formula to calculate the volume resistivity of rubber. Which generalized points need to be considered when rubber product is exposed to liquid.	03 04
Q.5	(a)	Discuss in detail about the accelerated ageing of rubber product in air oven.	07
Q.5	(b) i ii	Answer the following Write down the effect of long term temperature and short term temperature respectively on the rubber. Give the name of apparatus used to measure the cut growth resistance of rubber product. Also list out its major componenets.	03 04
0.5	()	OR	0.7
Q.5	(a)	Discuss in detail about the ageing of rubber in ozone test chamber.	07
Q.5	(b) i ii	Answer the following What is practical significance of low temperature test for rubber product? Write down the practical significance of low temperature test for rubber product.	03 04

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