

**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 carrier 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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