

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019****Subject Code:2162601****Date:10/05/2019****Subject Name:Rubber Compound & Product Testing****Time:10:30 AM TO 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) Write a brief note on method-A to determine the dimensions of product. **03**
(b) Why is it necessary to carry out the testing at different conditions? Also **04**
(c) Discuss in detail about the purposes of testing. **07**
- Q.2** (a) Define the term PRI with its formula. Also give practical significance **03**
of PRI test.
(b) What do you mean by green shrinkage? How is it determined? **04**
(c) Explain in detail about the principle of measuring micro hardness. **07**
- OR**
- (c) Write short note on “Durometer test”. **07**
- Q.3** (a) Draw the appropriate diagram of the device for compression set under **03**
constant deflection. Write the major components of the same.
(b) Differentiate the terms ‘wear’ and ‘abrasion’. List the different types of **04**
wear mechanism with their example.
(c) Explain in detail about the basic elements of tensile machine with the **07**
standard test procedure.
- OR**
- Q.3** (a) Write the significance and use of compression set test. **03**
(b) Describe the working of ‘Akron’ and ‘Du Pont’ type of arrangements **04**
for abrasion test.
(c) Discuss in detail about the different variations in form of test piece for **07**
tear test.
- Q.4** (a) Draw the labeled diagram of vertical rebound apparatus. **03**
(b) Write the significance and calculation for the measurement of retraction **04**
at lower temperature.
(c) Discuss in detail about the interpretation of results for the measurement **07**
of resistance to flex-cracking by De Mattia tester.
- OR**
- Q.4** (a) Write the standard procedure to determine rebound resilience by **03**
vertical rebound apparatus.
(b) What is the standard procedure for the measurement of retraction at **04**
lower temperature?
(c) Explain in detail about the apparatus and standard procedure for the **07**
measurement of resistance to flex-cracking by De Mattia tester.
- Q.5** (a) Write a brief note on ASTM reference fuels. **03**
(b) Draw a neat diagram of electrode assembly used to measure the volume **04**
resistivity.
(c) Explain the term permeability. Discuss the constant volume method to **07**
study permeability behavior of vulcanizate.

- Q.5 (a) Write a brief note on ASTM reference oil. 03
- (b) Describe the given terms: (i) Volume Resistivity (ii) Surface Resistivity 04
- (c) Explain the term solubility constant. Discuss the constant pressure method to study permeability behavior of vulcanizate. 07

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