

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– IV • EXAMINATION – SUMMER • 2015

Subject Code: 142604**Date: 08/06/2015****Subject Name: Introduction to Rubbers & Rubbery Materials****Time: 10.30am-01.00pm****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) Define the term “Glass Transition Temperature”. Explain its importance in Polymers. **07**
- (b) Explain the Rubber elasticity in shear stress and derive the formula for shear stiffness with diagram. **07**
- Q.2** (a) Explain the process of open mill with the diagram showing the features of a two roll open mill. **07**
- (b) Write in detail about the Classification of Polymers. **07**
- OR**
- (b) Write the difference between Organic & Inorganic Polymers. **07**
- Q.3** (a) Explain in detail the Gaussian theory of rubber elasticity. **07**
- (b) Write in detail about Electrical Properties of Polymers. **07**
- OR**
- Q.3** (a) Explain the Rubber elasticity in compression stress with appropriate diagram. **07**
- (b) Short note on chain flexibility and weak links. **07**
- Q.4** (a) Explain about the requirement of third monomer in EPDM rubber. Give their name and structures. **07**
- (b) Define the term Latex. Short note on ‘Tapping of Latex.’ **07**
- OR**
- Q.4** (a) Short note on “Pale Crepe”. **07**
- (b) Give the synthesis reaction of IIR. Explain its chemistry, properties and applications. **07**
- Q.5** (a) Give the difference between two types of Internal Mixer. **07**
- (b) Discuss in detail about the Non-Sulfur Vulcanizing system for Olefin Rubbers. **07**
- OR**
- Q.5** (a) Define the term Mixing & explain the different stages of mixing. **07**
- (b) Short note on “Reclaimed Rubber”. **07**
