

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. Sem-IV Examination June- 2011****Subject code:142604****Subject Name: Introduction to Rubbers & Rubbery Materials****Date:13/06/2011****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** Answer The following (14)
- (1). Define the following terms(i) Mastication (ii) Mixing.
 - (2). Give the difference between two types of Internal Mixer.
 - (3). List the name of Activators.
 - (4). Wax blooming is preferable or not? Why?
 - (5). Give the difference between Rate of cure & State of cure.
 - (6). Define the term(i) Hysteresis (ii) Shape factor
 - (7). Give the difference between Thermoplastics & Thermosetting Polymers.
- Q.2** (a) Discuss the different types of Accelerators. (07)
- (b) Short note on Ester Plasticisers. (07)
- OR**
- (b) Write properties & applications of Poly Butadiene Rubber and Nitrile Rubber. (07)
- Q.3** (a) Explain Construction and Working of Mixing Mill. (07)
- (b) Explain the Theory of Sulfur Vulcanization. (07)
- OR**
- Q.3** (a) With Suitable specifications discuss the mixing in Internal Mixer. (07)
- (b) Discuss in detail about the Non-Sulfur Vulcanizing system for Olefin Rubbers. (07)
- Q.4** (a) Write in detail about the Classification of Polymers. (07)
- (b) Explain in detail about Rubber Elasticity in Shear & Compression. (07)
- OR**
- Q.4** (a) Define the term 'Glass Transition Temperature.' Discuss the factors, which influence the Glass Transition Temperature. (07)
- (b) Short note on Stress Relaxation during Ageing. (07)
- Q.5** (a) Define the term Latex. Discuss the different ways of distinguishing the effectiveness of preservative for Latex. (07)
- (b) What do you mean by Cold flow? Discuss the techniques for reduction of cold flow & improvement of green strength. (07)
- OR**
- Q.5** (a) Short note on 'Tapping of Latex'. (07)
- (b) Write in detail about Electrical Properties of Polymers. (07)
