

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012****Subject code: 142604****Date: 31/12/2012****Subject Name: Institute Elective-1 (Introduction to Rubbers & Rubbery Materials)****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data wherever necessary.

- Q. 1 (a) Answer the following. (14)
- (i) Write the importance of mastication in Mixing.
- (ii) What do mean by Hysteresis loss (H)?
- (iii) Give the difference between Thermoplastics & Thermosetting Polymers.
- (iv) Wax blooming is preferable or not? Why?
- (v) Explain the term 'Friction Ratio'.
- (vi) How the Zinc oxide & Stearic acid works as an Activator?
- (vii) Write the function of Peptisers.
- Q. 2 (a) Discuss the importance of accelerators in rubber compounding with examples. (07)
- Q. 2 (b) Discuss the Construction and Working of Mixing Mill. (07)
- OR**
- (b) Short note on Factice. (07)
- Q. 3 (a) Discuss the Sulphur Vulcanization with its mechanism. (07)
- (b) Discuss in detail about the Non-Sulfur Vulcanizing system for Olefin Rubbers (07)
- OR**
- Q. 3 (a) Write the difference between Organic & Inorganic Polymers (07)
- (b) List the factors affect the Crystallinity of Polymers. (07)
- Q. 4 (a) Write the Synthesis reaction for Butyl Rubber (IIR). Explain about Curing System of Butyl Rubber in detail. (07)
- (b) What do you mean by Tapping? Write in detail about processing of NR latex after tapping. (07)
- OR**
- Q. 4 (a) Write the Synthesis reaction for Chloroprene rubber. Write about its vulcanizate properties and applications. (07)
- (b) Write in details about Properties of Natural Rubber. (07)
- Q.5 (a) List the molecular factors controlling glass transition temperature (T_g) of rubber and explain it in detail. (06)
- (b) Discuss the different ways of distinguishing the effectiveness of preservative for Latex. (08)
- OR**
- Q.5 (a) Write in details about solution properties of Rubber. (06)
- (b) Short note on 'Reclaimed Rubber'. (08)
