

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. Sem-III (Remedial) Examination May 2011****Subject code: 132601****Subject Name: Basic Rubber Science****Date: 30/05/2011****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** (a) Answer the following
- (i) Give the classification of rubber based on the chain structure. **06**
- (ii) Mention the types of molecular motion observed in rubber. **02**
- (b) Describe the conditions which are necessary for any material to behave like rubber. **06**
- Q.2** (a) Discuss in detail about the characteristic properties of rubber. **08**
- (b) Write a comparison between multimolecular, macromolecular and associated colloids. **06**
- OR**
- (b) Write a short note on mechanical properties of colloids. **06**
- Q.3** (a) Answer the following
- (i) Write a short note on initiators. **06**
- (ii) How the low molecular weight compound differs from polymer? **04**
- (b) Which are the different modes of addition of the incoming monomer to the growing chain during propagation? **04**
- OR**
- Q.3** (a) Answer the following
- (i) Write a short note on inhibitors. **06**
- (ii) Give the difference between chain polymerization and step polymerization. **04**
- (b) Write down the salient features of solution polymerization. **04**
- Q.4** (a) Explain the methods for density determination for various types of substances including powders and liquids. **07**
- (b) Answer the following
- (i) Write about the various mode of heat transfer. **04**
- (ii) Define the given terms: (i) Bulk Modulus (ii) Shear Modulus (iii) Poisson's Ratio **03**
- OR**
- Q.4** (a) Answer the following
- (i) Explain the term surface tension. How the surface tension is measured by Leconte du Tensiometer? **06**
- (ii) State the laws of regular reflection and refraction respectively. **04**
- (b) Explain the terms vibrations and waves respectively. **04**
- Q.5** (a) Give the difference between Gel and Paste. **07**
- (b) Write about three types of colloids with examples **07**
- OR**
- Q.5** (a) Write a short note on Emulsion. **07**
- (b) Discuss in detail about the applications of colloids. **07**
