

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (New) EXAMINATION – WINTER 2018****Subject Code: 2132602****Date: 05/12/2018****Subject Name: Rubber Technology****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) Which are the different sources of natural rubber? **03**
 (b) Write in brief about Lignin as a natural polymer. **04**
 (c) Explain the bud-grafting process for vegetative propagation of Hevea brasiliensis. **07**
- Q.2** (a) What do you mean by Warm Stretching? Explain in brief. **03**
 (b) How the applied orientation affects the tensile strength and elongation properties? **04**
 (c) Discuss about the importance of Hydrogen element in organic chemistry and in polymer structure. **07**
- OR**
- (c) Write in detail about the effect of impurities remaining from the original polymerisation reaction on final polymer composition. **07**
- Q.3** (a) What is the difference between linear and branched polymers? **03**
 (b) Write about the different configurations of butadiene units in polybutadiene molecule. **04**
 (c) Discuss in detail about thermal transitions in polymers. **07**
- OR**
- Q.3** (a) What do you mean by 'Organic polymers' and 'Inorganic polymers'? **03**
 (b) Give the difference between Homopolymers and Copolymers with suitable example. **04**
 (c) Discuss in detail about the factors influencing the Glass transition temperature. **07**
- Q.4** (a) Give difference between absorption and adsorption. **03**
 (b) Write about any two methods of forming porous structure of polymer. **04**
 (c) List the processes for production of chloroprene monomer. Explain any one in detail. **07**
- OR**
- Q.4** (a) Define the terms: (i) Sorption (ii) Sorbent (iii) Sorbate **03**
 (b) Write about the mechanism of sorption of inert sorbates on micropore and macropore respectively. **04**
 (c) Discuss about the Reppe process for the production of butadiene monomer. **07**
- Q.5** (a) Write about the properties of unsaturated polyester resins. **03**
 (b) Write in brief about the different types of polyurethane foams. **04**
 (c) Discuss about the different factors affecting thermal stability of a polymer. **07**
- OR**
- Q.5** (a) Write the major applications of amino resins. **03**
 (b) Give the properties and uses of Silicone fluids and Silicone Resins. **04**
 (c) Which are the types of degradation? Discuss in detail about the same. **07**
