

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. Sem-IV Examination June- 2011****Subject code:142602****Subject Name: Natural Rubber Science & Technology****Date:08/06/2011****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). Write the structure of Natural Rubber which is available from Hevea Tree.
- (2). List the different types of Chemical Modification of Natural Rubber.
- (3). “The Polyisoprene structure makes Natural Rubber (NR) the most reactive among ther diene rubbers.” Justify the statement.
- (4). List any four applications of ENR.
- (5). What do you mean by Partitioning agents? List the name of it.
- (6). Write about the Cryogenic grinding for the preparation of Powdered Rubber.
- (7). Define the term ‘Transmissibility.

Q.2 (a) Discuss the different stages of Crystallization process. (07)

(b) Define the term ‘Graft Copolymer’ and list the requirements for the construction of graft copolymer to behave as a Thermoplastic Rubber. (07)

OR

(b) List the factors affecting Tensile Strength of Graft Copolymers. Explain any one in detail. (07)

Q.3 (a) List the other modified forms of Natural Rubber. Write about any two. (07)

(b) Discuss different types of depolymerised rubber according to the degree of degradation. (07)

OR

Q.3 (a) List any three properties of Natural Rubber influenced by Non rubber substance. (07)

(b) Discuss the properties of Reclaim Rubber as a compounding ingredient. (07)

Q.4 (a) Discuss the diffusion of water in rubbers. Draw the schematic representation of model for water absorption. (07)

(b) Write the advantages of Powdered Rubber. (07)

OR

Q.4 (a) Discuss the general features of Wax Blooming. (07)

(b) Explain the processing of Powdered Rubber. (07)

Q.5 (a) Answer the following. (10)

- (1). Discuss the preparation of Liquid Telechelic Polymers.
- (2). Describe in detail about Reclaimantor process.

(b) ‘Rubber is not normally used in tension in engineering application’. Give the reason for that. (04)

OR

Q.5 (a) Answer the following. (10)

- (1). Write about Liquid Polysulfide Polymers.
- (2). Discuss in brief about the preparation of Reactive Polystyrene PrePolymer.
- (b) List the application of Asphalt Rubber. (04)
