

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- IVth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 142602****Date: 25/05/2012****Subject Name: Natural Rubber Science & Technology****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. (14)

- (i). Why DPNR is suitable for use in Engineering Components?
- (ii). Write the simple addition reaction for natural rubber and write its one mechanistic route.
- (iii). How poly-styrene molecular weight will affect the tensile strength of graft co polymer?
- (iv). Define the term: 'Reclaimed rubber'.
- (v). What do you mean by Skim Rubber?
- (vi). Explain the relation between polystyrene content (%) & tensile strength of graft co polymer.
- (vii). Write the structure & chemical name of natural rubber.

Q.2(A) "ENR is an attractive tread compound". Explain in detail. (07)

Q.2(B) List the name of methods used for preparation of powdered rubber and explain in detail. (07)

OR

Q.2(B) List any four principle advantages of powdered rubber and justify it. (07)

Q.3(A) Write about the influence of following non-rubber substances (NRS) on properties of Natural Rubber(i) Protein (ii)Carbohydrates(iii) β -Carotenes (07)

Q.3(B) List the classes of commercially established Liquid elastomers and explain any one in detail. (07)

OR

Q.3(A) List the environmental factors which affect the life and service of rubber components and explain it in detail. (07)

Q.3(B) Write about the requirements of telechelic polymer for the development as a general purpose elastomer. (07)

Q.4(A) Explain the preparation of reactive polystyrene pre-polymer by giving reaction. (07)

Q.4(B) Represent the model for water absorption. Explain the diffusion mechanism of water in rubber. (07)

OR

Q.4(A) Define the terms :- (1)Graft co polymer, (2) Grafting efficiency,(3) Hevea plus MG rubber (07)

Q.4(B) Explain the general features of wax blooming. (07)

Q.5(A) Discuss the properties of Reclaim Rubber as a compounding ingredient. (07)

Q.5(B) Discuss the four types of depolymerised rubber according to the degree of degradation. (07)

OR

Q.5(A) Define the term: Reclaimed rubber & list its principle applications. (07)

Q.5(B) Short note on ribbed smoke sheets (RSS). (07)
