

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV(NEW) – EXAMINATION – SUMMER 2019****Subject Code:2142602****Date:20/05/2019****Subject Name: Natural Rubber Science & Technology****Time:02:30 PM TO 05:00 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) Write in brief about SMR L. **03**
 (b) Give the advantages of TSR over conventional grades. **04**
 (c) Discuss in detail about “Ribbed Smoke Sheets” and “Brown and Blanket Crepes” in detail. **07**
- Q.2** (a) Compare the network structure of conventional and liquid elastomers. **03**
 (b) What is the alternative method for achieving carbon black dispersion in liquid polybutadiene rubber? **04**
 (c) Give the methods for preparation of Powdered rubbers. Explain any two in detail. **07**

OR

- (c) Discuss about the advantages of Powdered and Particulate rubbers. **07**
- Q.3** (a) List the stages of development of reactive prepolymer for NR graft copolymers. **03**
 (b) Write in brief about graft copolymers as thermoplastic rubbers. **04**
 (c) Discuss about the effect of compounding on the diffusion of hydrocarbon liquids and oils. **07**

OR

- Q.3** (a) What is the relation between tensile strength and grafting efficiency for polystyrene graft copolymer with NR and IR respectively? **03**
 (b) Give the reaction mechanism for grafting chemistry. **04**
 (c) Write a short note on Wax Blooming. **07**
- Q.4** (a) What do you mean by flexible rubber-steel laminates? **03**
 (b) How the Puncture test is carried out? Explain with suitable diagram. **04**
 (c) Describe the types of depolymerized rubber according to the degree of degradation achieved. **07**

OR

- Q.4** (a) Define the Term: “Hysteresis Loss”. Write its practical significance. **03**
 (b) Give a brief note on ‘Creep and Stress relaxation’. **04**
 (c) Explain the chemistry of epoxidation with reaction mechanism. **07**
- Q.5** (a) Write about any two types of Reclaimed rubber. **03**
 (b) Describe the “Induction period” in low temperature crystallization process. **04**
 (c) Write a short note on ‘Rubberized Asphalt’. **07**

OR

- Q.5** (a) List the major uses of Reclaimed rubber. **03**
 (b) Draw the Compression test-piece geometry for measurement of elastic modulus during crystallization process and write about it. **04**
 (c) Write a short note on Reclaimator process. **07**
