

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3152612****Date:16-05-2024****Subject Name: Reclaimed Rubber & its 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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define reclaim rubber with its examples. **03**
 (b) Give the difference between recycle rubbers and reclaim rubber. **04**
 (c) Discuss the application of reclaim rubber with scope in India as well as in developing countries. **07**
- Q.2** (a) Describe the phenomena of Vulcanization with suitable example. **03**
 (b) List out the different types of devulcanisation techniques. **04**
 (c) Explain digester process in detail with advantages and disadvantages **07**

OR

- (c) Discuss in detail about the Pan process with its diagram. **07**
- Q.3** (a) Explain use of devulcanised rubber in civil applications. **03**
 (b) Describe the microbiological devulcanisation process. **04**
 (c) Explain about the devulcanisation of scrap rubber by the De-Link process with schematic diagram. **07**

OR

- Q.3** (a) Give classification of -S- based curing system and importance of different sulfur crosslinks. **03**
 (b) Describe the microwave devulcanisation process. **04**
 (c) Discuss the technique used for Ultrasonic Devulcanisation and write its advantages. **07**
- Q.4** (a) Give the limitation of devulcanisation process of rubber. **03**
 (b) Give the importance of characterization of rubber. **04**
 (c) Explain the mechanical test for the characterization of devulcanised rubber in detail. **07**

OR

- Q.4** (a) Write the cure characteristic of SBR/WTR blends. **03**
 (b) Give the physical properties of NBR/WTR blends. **04**
 (c) Discuss the effect of devulcanisation level of rubber on physical properties & processing of devulcanised rubber. **07**
- Q.5** (a) Describe the process which is used for non sulphur vulcanized rubber. **03**
 (b) Write the chemical test used for characterization of devulcanised rubber. **04**
 (c) Discuss in detail about the processing of PBR/WTR blend with its physical properties and application. **07**

OR

- Q.5** (a) What is grafting? What is the effect of Maleic Anhydride grafting on reclaim rubber? **03**
 (b) Write about preparation of NBR/WTR Blend. **04**
 (c) Discuss in detail about the CR/ MA-g- WTR blends. **07**
