

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023

Subject Code:3152612

Date:05-12-2023

Subject Name: Reclaimed Rubber & its 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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1 (a) What is Reuse and Recycling? 03
(b) What is Crumb rubber? Write its major applications. 04
(c) Write about basic types of Reclaimed rubber in detail. 07
- Q.2 (a) What is dynamic devulcanisation? 03
(b) Write in brief about Pan process for rubber reclamation. 04
(c) Explain about Digester process for Reclaimed rubber production in detail. 07
- OR**
- (c) Describe the Chemical devulcanisation process in detail. 07
- Q.3 (a) Write about Thermal process involving chemicals for rubber reclamation. 03
(b) Write about Microwave Devulcanisation. 04
(c) Explain in detail about Mechanical devulcanisation involving Devulcanisation agents. 07
- OR**
- Q.3 (a) Write in brief about Microbiological Devulcanisation. 03
(b) Write in brief about Thermal process for rubber reclamation. 04
(c) Explain in detail about Devulcanisation process by Ultrasonic Waves energy. 07
- Q.4 (a) Write about preparation of SBR/WTR blend. 03
(b) Write about Tests to carry out for Physical properties of Vulcanizates containing devulcanized rubber. 04
(c) Write about Tests that can be carried out on waste rubber before Devulcanisation. 07
- OR**
- Q.4 (a) Write about preparation of NBR/WTR blend. 03
(b) Write about Tests to carry out to determine processing of devulcanized rubber. 04
(c) Describe in detail about tests to analyze the quality of Reclaimed rubber. 07
- Q.5 (a) Write in brief about variation in mechanical properties with Silane loading. 03
(b) Write about cure characteristics of NR/WTR Blend. 04
(c) Describe the function of coupling agent in NBR/WTR blend with reaction mechanism. 07
- OR**
- Q.5 (a) Write about variation in cure rate with Silane loading in reclaimed rubber blend. 03
(b) Write about cure characteristics of PBR/WTR Blend. 04
(c) Describe the grafting of Maleic Anhydride with Reclaimed rubber with diagram. 07
