

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2162603****Date: 09/12/2019****Subject Name: Rubber Equipment Design-I****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 the function of Break Shoe, Oil Tank & Roll end gear in Mixing Mill. **03**  
 (b) Justify the statement "Roll speed tends to decrease with increase in roll diameter." **04**  
 (c) Write a short note on 'Cross mixing devices'. **07**
- Q.2** (a) Write about the Autofrettage construction for Autoclave. **03**  
 (b) Give a brief note on 'Delta-ring closures' used in Autoclave. **04**  
 (c) Explain the Uhde-Bredtschneider closure and Double-cone seal ring closure with appropriate diagram. **07**

**OR**

- (c) Discuss about operating, normal & transient conditions affecting during operation of High Pressure Vessels. **07**
- Q.3** (a) What is the purpose of installing roll-preloading device? How does it work? **03**  
 (b) Write about roll-heating/cooling devices for calender. **04**  
 (c) Discuss the compounding & processing related problems occurred during calendaring operation with their causes & remedies. **07**

**OR**

- Q.3** (a) Which properties are required for compound used for Calendering process? **03**  
 (b) Describe the construction and working of roll cross-axis device. **04**  
 (c) Explain in detail about different types of roll configurations for calender. **07**
- Q.4** (a) What are the probable causes and possible solutions when stock temperature rises too quickly in internal mixer? **03**  
 (b) Write the advantages and disadvantages of internal mixer. **04**  
 (c) Explain about the function of wing. Write the effect of trailing and leading angle of wing in Internal Mixer. **07**

**OR**

- Q.4** (a) Write the advantages of Tampered water system in Internal Mixer. **03**  
 (b) Describe in detail about ZZ2 geometry for internal mixer. **04**  
 (c) Discuss the different types of discharge doors for Internal Mixer with their advantages & disadvantages. **07**
- Q.5** (a) Find the length of stroke required for an accumulator having a displacement of 110 liters. The diameter of plunger is 350mm. **03**  
 (b) Which law is responsible for the working mechanism of hydraulic press? Describe in brief about the same. **04**  
 (c) Discuss in detail about the construction & working of Press classified according to source of power. **07**

**OR**

- Q.5** (a) Give the detailed description for the mechanical press having following designation: **03**  
 $S V A 2 - 1000 + 600 - 1800 \times 1600$   
 (b) Which points should be taken into consideration while selecting a Press? **04**  
 (c) Explain in detail about any four ram driving mechanism with diagram. **07**

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