

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2018****Subject Code: 2162603****Date: 27/11/2018****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 importance of V shaped Chuks in Mixing Mill. **03**
(b) List the different safety devices used for Mixing Mill. Write about any one in detail. **04**
(c) Explain in detail about different parts of Mixing mill. **07**
- Q.2** (a) Write the advantages of Tampered water system in Internal Mixer. **03**
(b) Write in brief about Fill factor. **04**
(c) Explain the different types of discharge door with their advantages & disadvantages. **07**

OR

- (c) Define the purpose of ram in Internal Mixer. Discuss the different configuration of ram with their advantages, disadvantages & limitations. **07**
- Q.3** (a) Write the different causes for thickness variation in Calender Sheet. **03**
(b) Discuss in detail about Roller heating for Calender Machine. **04**
(c) Discuss the compounding, processing & final product related problems, their causes & remedies for calendering operation. **07**

OR

- Q.3** (a) Write the function of Break Shoe, Oil Tank & Roll end gear in Mixing Mill. **03**
(b) Explain the difference between Gaskell & Ardichivli's assumptions for calculation of Roll Separating force in Calender Machine. **04**
(c) Describe in brief about construction & operation of Calender Machine, used for different application in Rubber industries. **07**
- Q.4** (a) List the different parts of power press. Write about any one. **03**
(b) Describe about the straight side press. **04**
(c) A Hydraulic Press has a ram of 12cm dia. & plunger of 1.5 cm dia. Determine the load lifted if a force of 294.3 N is applied to the plunger. If the plunger has a stroke of 20 cm, how many strokes will be required to lift weight by 0.50 m? Also calculate the volume of additional liquid required & the power of motor driving the plunger if the time taken by the press is 15 minutes. **07**

OR

- Q.4** (a) What ram force is developed in a Hydraulic press if $f_p = 444.8 \text{ N}$, $D_r = 30.5 \text{ cm}$, $D_p = 10.2 \text{ cm}$? **03**
(b) Which points should be taken into consideration while selecting a Press? **04**
(c) Explain in detail about any three types of mechanism of ram driving for press. **07**

- Q.5 (a) What is the effect of transient conditions on pressure vessels? 03
(b) Write in brief about Shrink-fit construction. 04
(c) Discuss in detail about the Materials used for manufacturing of High Pressure Vessels. 07

OR

- Q.5 (a) Write a brief note on 'Jackets for vessels'. 03
(b) Write about the effect of normal conditions for pressure vessels. 04
(c) Discuss in detail about Delta –Ring & Double –Cone Seal Closures for Autoclave. 07

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