Seat No.:	Enrolment No
GUJARAT TECHNOLOGICAL UNIVERSITY	

BE - SEMESTER-VI • EXAMINATION – SUMMER 2013

Subject Code: 162603 Date: 28-05-2013 Subject Name: Rubber Equipment Design-I Time: 10.30 am - 01.00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Answer the following. (10)0.1 (a) (i) List the different parts of mixing mill. Write the function of any three parts. (ii) What are the safety devices to avoid damage to mill roll & operator? **(b)** Answer the following. (04)Which are the main processes involved in mixing operation? (i) (ii) "Roll speeds tend to decrease with increase in roll diameter". Justify the statement. (07)**Q.2** Explain the calculation of Roll separating force by Ardichvili's equation. (a) **(b)** Answer the following. (i) Short note on "Mounting of Calender Rolls." (05)(ii) How you can measure the thickness of Calender sheet in a unique way? (02)OR Discuss the compounding, processing & final product related problems, their **(b)** (07)causes & remedies for calendaring operation. **Q.3** Explain the different types of discharge door with their advantages & (a) (07)disadvantages. **(b)** Describe about 'Tampered Water System.' (07)OR List the typical maintenance problems for Internal Mixer. Write their Q.3 (07)(a) probable cause & possible solution for any three. **(b)** Define the purpose of ram in Internal Mixer. Discuss the different (07)configuration of ram with their advantages, disadvantages & limitations. Explain the classification of mechanical press on basis of mechanism of ram (07)0.4 (a) driving. Explain in detail about Hydraulic Accumulator. Discuss about its capacity (07)**(b)** also. OR A Hydraulic press has a ram of 12 cm. diameter & plunger of 1.5 cm. (07)0.4 (a) diameter. Determine the load lifted of a force of 30 kgf 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 the motor driving the plunger if time taken by press is 15 minutes. ----P.T.O.----

Q.4	(b) (i)	Answer the following. The weight of a 350 mm plunger of an accumulator is 4500 kg. What	(05)
		additional weight to be placed upon it to develop a hydraulic pressure of 42 kg/cm ² ?	
	(ii)	What ram force is developed in a Hydraulic press if f_p =450 N, D_r = 30.5 cm, D_p =10.2 cm?	(02)
Q.5	(a)	Discuss about the importance of operating, normal & transient condition while designing of an autoclave.	(07)
	(b)	Short note on "Materials for High Pressure Vessels".	(07)
		OR	
Q.5	(a)	Discuss the different types of Vessel Closures.	(07)

How many types of stresses are produced in shell? Explain the variation of stresses along the radius of the shell & along thickness for a thin cylinder. (07)**(b)**
