

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VI EXAMINATION - WINTER 2025

Subject Code: 3162603

Date: 02-12-2025

Subject Name: Rubber Equipment Design

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.**

	Marks
Q.1 (a) Define internal mixer and its main function	03
(b) Describe how roll temperature affects mixing efficiency.	04
(c) State the importance of cross mixing. Short note on “cross mixing devices”.	07
Q.2 (a) What is the purpose of installing roll-preloading device? How does it work?	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
OR	
(c) Write a short note on roll bearings.	07
Q.3 (a) Give the detailed description for the mechanical press having following designation: S V A 2 – 1000 + 600 – 1800 x 1600	03
(b) Explain the factors affecting mold shrinkage.	04
(c) A press has ram $\varnothing = 20$ cm, plunger $\varnothing = 3$ cm, and applied force = 300 N. (a) Find the ram load. (b) For a ram lift = 0.25 m and plunger stroke = 12 cm, find strokes required. (c) If the motor is 75% efficient, compute input power to complete the lift in 8 minutes.	07
OR	
(a) Write in brief about gap frame press.	03
(b) Which points should be taken into consideration while selecting a press?	04
(c) In a shop press, ram $\varnothing = 25$ cm, plunger $\varnothing = 5$ cm, $F = 500$ N. (a) Find the load. (b) If the time available = 10 minutes to raise the load by 0.20 m, compute the average flow rate (L/min) needed at the plunger. (c) Find the motor power if pump–motor efficiency is 70%.	07
Q.4 (a) Give the importance of chrome plating for mold.	03
(b) What do you mean by anisotropy? Which factor affects the anisotropy?	04

- (c) Give the importance of Runner in Transfer Mold. In designing of runner, which points should be considered? Explain all points in detail. 07

OR

- (a) Write the importance of Parting Line. 03

- (b) Compare FIFO and FILO molding systems. 04

- (c) Discuss the advantages and disadvantages of transfer molding over compression molding. 07

- Q.5** (a) Why possibilities of material stagnation are likely to be more in Offset Die design? 03

- (b) List the important aspects for practical die design. 04

- (c) Short note on “High Intensity Mixing Screw” 07

OR

- (a) Write the function & importance of Die. 03

- (b) Which materials are used for die construction? 04

- (c) Describe about the design of extruder head. 07
