Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering - SEMESTER - VI EXAMINATION - SUMMER 2025

Subject Code: 3162611 **Date: 30-05-2025**

Subject Name: Engineering Rubber Products

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.**

			Marks
Q.1	**(a)**	Name three rubber products used in the defense industry and state their general applications.	**03**
	(b)	List the factors which considered when selecting a suitable rubber for compound design.	**04**
	(c)	Discuss in detail about spreading Process for manufacturing of Printing Blanket.	**07**
Q.2	**(a)**	Draw the rubber formula for the automotive break lining application.	**03**
	(b)	List the hospitals rubber goods. Design the formula for the hot water bottles.	**04**
	(c)	Describe about the manufacturing process of conventional Wound Golf Balls.	**07**
		OR	
	(c)	Explain the manufacturing process of Tennis Balls and analyze how material selection impacts performance.	**07**
Q.3	**(a)**	What do you mean by Rubber Plating? Give its significance.	**03**
	(b)	Give the difference between ebonite & semi ebonite rubber.	**04**
	(c)	What are elastomeric bearings? Describe their properties, behavior, advantages, and applications in bridge construction.	**07**
		OR	
	(a)	Draw the schematic flow chart for the Rubber tank lining manufacturing process.	**03**
	(b)	List the factors which are important for the selection of bridge bearings.	**04**
	(c)	Develop the formulation for the O-ring as per below specifications and calculate the compound specific gravity and compound cost per kg.(Assume the necessary data) Specifications: Hardness : 60-65 shore A, temperature resistance up to 70-80 degreeC, Oil resistance, color Black.	**07**
Q.4	**(a)**	Give the difference between the Static, Dynamic and Kinematic balance for rubber roller.	**03**
	(b)	What are the key considerations in designing a rubber roller for printing applications? How does hardness and surface finish affect roller performance?	**04**
	(c)	Explain about the extrusion process for the rubber seal manufacturing.	**07**

OR

	(a)	Give the difference between the O-ring, Gaskets and rubber Seals.	**03**
	(b)	Explain the process of preparing Gaskets from sheets.	**04**
	(c)	Describe about the forming process of rubber covering for Rubber Roller.	**07**
Q.5	**(a)**	List any three causes of failure in pneumatic dock fenders.	**03**
	(b)	Explain the difference between solid rubber fenders and pneumatic fenders.	**04**
	(c)	Describe in detail about the manufacturing of Vibration isolators and shock mounts.	**07**

OR

	(a)	Design the rubber compounding formula for vibration mounts.	**03**
	(b)	Write a short note on vibration isolation and damping. How do they differ in purpose and function?	**04**
	(c)	Describe common failure modes in dock fenders with case study examples. What are the preventive measures?	**07**

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