

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3152607****Date:18-12-2023****Subject Name: Rubber Product & Process Engineering****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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Name the chemical responsible for each of the following health hazards: (i) Bladder cancer (ii) Skin cancer (iii) Kidney damage.	03
	(b) Explain chronic toxicity and acute toxicity in detail with examples.	04
	(c) Discuss the health hazard from various types of nonblack fillers.	07
Q.2	(a) Why Good housekeeping is important for Rubber Industries?	03
	(b) Write the benefits of Good Housekeeping.	04
	(c) Write a note on personal protective equipment's.	07
	OR	
	(c) Describe various components of safety program.	07
Q.3	(a) Define the terms: (1) Pollution (2) Pollutant (3) Stratosphere.	03
	(b) Write the damages caused by the pollution on the natural functioning of biosphere.	04
	(c) Why are landfills of scrap rubber environmentally harmful? Explain in detail.	07
	OR	
Q.3	(a) List different types of pollution in rubber industry. Explain any one.	03
	(b) List out the main cause of industrial pollution.	04
	(c) What was the worst chemical disaster in human history? Explain in detail.	07
Q.4	(a) Why plant layout is required? Discuss any one reason in detail.	03
	(b) Mention the features of Rural sites.	04
	(c) Draw the plant layout diagram for O-ring manufacturing unit.	07
	OR	
Q.4	(a) What are the objectives of industrial estates?	03
	(b) Describe any four features of suburban site.	04
	(c) Discuss the specific factors affecting plant site location.	07
Q.5	(a) Describe the factors affecting cost of production.	03
	(b) List the obstacles of an entrepreneur desiring to set up a small industry.	04

- (c) The annual data for “A” Group of company is given below:

07

Sr.No.	Particulars	Amount Rs.
1	Sales 1,50,000 units at Rs. 350/- each	
2	Raw material cost	85,00,000
3	Utility cost	15,00,000
4	Labour cost	12,50,000
5	Salaries	25,00,000
6	Administrative expenses	7,50,000
7	Rent, Insurance	3,50,000

Calculate variable cost, fixed cost, contribution and breakeven point as percent installed capacity. (Assume depreciation as per market situation & Given estimate amount).

OR

- Q.5** (a) Discuss the point to be kept in mind while estimating the working result (profit). 03
- (b) Describe in brief “Just In Time” management philosophy. 04
- (c) Calculate breakeven point as percent installed capacity and payback period from the following data: 07

Sr.No.	Particulars	Rs(Lakhs)
1	Total Capital investment	20
2	Net Profit	10
3	Fixed Cost	5
4	Variable Cost	30
5	Income by Sales	50
