

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-VII Examination-Nov/Dec.-2011

Subject code: 172603

Date: 24/11/2011

Subject Name: Rubber Plant and Process Engineering

Time: 10.30 am-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. All notations used have conventional meaning.

- Q.1 (a)** Write the effect of following chemicals on human health: **07**
(i) β Naphthylamine (ii) Acrylonitrile (iii) Calcium carbonate
(iv) Resorcinol (v) Blowing agent in general (vi) DPG
(vii) Chlorinated Petroleum Wax.
- (b)** Discuss the health hazard from Nitrosoamines and Aromatic oils. **07**
- Q.2 (a)** List all the components of cost of project and explain any two in detail. **07**
- (b)** The annual data for ABC Ltd. is given below: **07**

S.No.	Particulars	Amount Rs.
1.	Sales 1,50,000 units at Rs. 200/- each	
2.	Raw material cost	80,00,000
3.	Utility cost	15,00,000
4.	Labour cost (daily wages)	9,00,000
5.	Salaries	20,00,000
6.	Administrative expenses	5,00,000
7.	Rent, Insurance	2,00,000

Calculate variable cost, fixed cost, contribution and break even point as percent installed capacity.

OR

- (b)** Calculate annual raw material cost for natural rubber bush from **07**
following data:
Weight of one bush:- 100 g
Total production per year:- 20 lac units.
No. of shifts:- One
Also suggest mixing equipment. Assume suitable formulation, cost and other data.
- Q.3 (a)** Explain different forms of plant maintenance. **07**
- (b)** Discuss about different types of pollution in rubber **07**
industry

OR

- Q.3 (a)** Write a note on control techniques needed for plant safety. **07**
- (b)** Discuss about inerting and sprinkler system. **07**
- Q.4 (a)** Define the following terms. **04**
1. Highly Volatile Material
 2. Medium Volatile Material
 3. Combustible Material
 4. Ash
- (b)** Write about different ways for physical waste reduction. **04**
- (c)** Describe in brief management philosophies: Just In Time, Right First Time and Total Quality Management. **06**
- OR**
- Q.4 (a)** Write about the role of spectroscopy and chromatography in reverse engineering in rubber products. **09**
- (b)** Discuss the methods of timing elements **05**
- Q.5 (a)** (i) Mention the features of Suburban sites. **04**
- (ii) List the obstacles to an entrepreneur. **04**
- (b)** Discuss the handling methods and operations at mixing and extrusion area. **06**
- Q.5 (a)** Discuss the primary factors affecting plant site location. **05**
- (b)** Write the guiding principles for transport and storage in manufacture in plant layout. **09**
