

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 132905**Date: 13/12/2011****Subject Name: Basic Engineering in Textiles****Time: 2.30 pm -5.00 pm****Total marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) What do you mean by maintenance? What are the types of maintenance? **07**
 Explain any one in detail.

(b) Solve the following minimization assignment problem. **07**

	Activities					
		A	B	C	D	E
Person	P	10	5	13	15	16
	Q	3	9	18	13	6
	R	10	7	3	2	2
	S	7	11	9	7	12
	T	7	9	10	4	12

Q.2 (a) Explain working of Cochran boiler with neat sketch. **07**

(b) Get feasible solution for following “Minimization Transportation Problem, using Vogel’s approximation method. Is this solution optimal? **07**

	D ₁	D ₂	D ₃	supply
O ₁	4	5	4	12
O ₂	6	7	4	15
Demand	8	5	14	

OR

(b) Get IBFS for following Minimization Transportation Problem by MMM. Obtain optimal solution using MODI. **07**

	X	Y	Z	supply
A	4	2	4	15
B	12	8	4	15

demand	10	10	10	
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Q.3 (a) Information on the activities on the activities required for a project is as follows: **07**

Activity	Duration (days)
1-2	2
1-3	7
1-4	8
2-5	3
3-5	6
3-6	10
3-7	4
4-6	6
5-7	2
6-8	5
7-8	6

- (i) Draw the network
(ii) Compute E and L
(iii) find the critical path

(b) The following table gives the data for the activities of a small project: **07**

Job(i-j)	Optimistic time(days)	Most likely time(days)	Pessimistic time(days)
1-2	1	4	7
1-3	5	10	17
2-4	3	3	3
2-6	1	4	7
3-4	8	15	26
3-5	2	4	8
4-5	5	5	5
5-6	2	5	8

- (i) Draw the network and find the expected project completion time.
(ii) Find the expected duration and variance for each activity.

OR

Q.3 (a) (1) Differentiate between CPM and PERT network. **05**

(2) Define critical path. Give its significance in the network. **02**

(b) Explain the distribution of steam, water and compressed air in textile industries. **07**

Q.4 (a) (1) Explain the various steps required to conduct method study **03**

(2) Explain in brief flow process chart. **04**

(b) (1) Define: normal time and standard time. **02**

(2) List the various time recording techniques in time study and explain anyone method in detail. **05**

OR

Q.4 (a) (1) Explain humidification and dehumidification. **04**

(2) Define: RH, WBT, DPT **03**

(b) Explain cooling with adiabatic humidification of air. **07**

Q.5 (a) Explain the distribution of steam, water and compressed air in textile industries. **07**

(b) Solve following LPP using simplex. **07**

Maximize $Z = 3x_1 + 5x_2 + 4x_3$

Subject to $2x_1 + 3x_2 \leq 8$,

$2x_2 + 5x_3 \leq 10$,

$$3x_1 + 2x_2 + 5x_3 \leq 15,$$

$$x_1, x_2, x_3 \geq 0$$

OR

- Q.5** (a) Necessity of feed water treatment **07**
 (b) Solve following LPP using simplex. **07**
 Maximize $Z = 3x_1 + 5x_2$
 Subject to, $x_1 \leq 4$
 $x_2 \leq 6$
 $3x_1 + 2x_2 \leq 18$
 $x_1, x_2 \geq 0$
