

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 132905**Date: 03-01-2013****Subject Name: Basic Engineering in Textile****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.

- Q.1** (a) 1. What is work study? Explain its basic procedure. **07**
 2. List out process chart events and show it as symbol
 3. Define work measurement technique.
- (b) 1. Write short note on SIMO chart **07**
 2. Explain about micro motion study.

- Q.2** (a) 1. Compare CPM & PERT method for project planning. **07**
 2. Explain steps for selection of worker for time study.
- (b) 1. Define critical path & explain with example. **07**
 2. Explain following
 Optimistic time, pessimistic time, most likely time

OR

- (b) 1. Compare work sampling with time study. **07**
 2. Compare standard time & basic time.
- Q.3** (a) Information on activities as required for project is as follows. **07**

Activity	Duration
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

1. Draw the network
2. Compare Earliest time and Latest Time
3. Find Critical path.

- (b) 1. State the assumption of linear programming & explain mathematical formulation of linear programming. **07**
 2. Solve the following LPP by graphical method
 Maximize $Z = 3X_1 + 2X_2$
 Subject to $2X_1 + X_2 \leq 2$
 $X_1 + 3X_2 \leq 12$ $X_1, X_2 \geq 0$

OR

- Q.3 (a)** A workshop has five machines with five jobs to perform. Time study (in hours) each man will take to perform each job is given below. **07**

JOBS	Machines					
		I	II	III	IV	V
A	9	5	12	12	14	
B	3	9	16	12	6	
C	9	6	2	2	2	
D	7	11	9	7	12	
E	7	9	10	4	12	

How should the jobs be assigned one per worker so as to minimize total man hour?

- (b)** Solve the optimal solution to the following transportation problem by MODI method to minimize the transportation cost from given data. **07**

	D1	D2	D3	D4	Available
O1	23	27	16	18	30
O2	12	17	20	51	40
O3	22	28	12	32	53
Required	22	35	25	41	123

The cell entries are unit transportation cost.

- Q.4 (a)** Explain the distribution of steam water and compressed air in textile industries. **07**

- (b)** 1.Explain humidification and dehumidification **07**
2.Define:Relative Humidity ,Wet Bulb Temp, DPT.

OR

- Q.4 (a)** 1. Explain functions or elements of preventive maintenance. **07**
2. Differentiate between break down maintenance and predictive maintenance.

- Q.4 (b)** Explain humidification by air washer method with neat sketch. **07**

- Q.5 (a)** What is fire tube boiler? Explain any one fire tube boiler with neat sketch. **07**

- (b)** What is boiler feed water treatment? Explain how it is carried out? **07**

OR

- Q.5 (a)** 1What is water tube boiler? Why it is preferred over fire tube boiler? **07**
2.Name important factor while selecting a boiler

- (b)** Explain package type of boiler in detail? **07**
