Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER 3– EXAMINATION – WINTER 2014

Subject Code: 132905 **Date: 18/12/ 2014**

Subject Name: Basic Engineering In Textile

Time:02.30 pm - 05.00 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? Explain predictive maintenance in detail. **07**

(b) Explain Cochran boiler with neat sketch. **07**

Q.2 **(a)** What is performance rating and what are different rating methods? **07**

(b) Solve the following LPP by graphical method. **07**

Minimize $Z = 20X_1+10X_2$

Subject to, $X_1+2X_2 \leq 40$

$3X_1+X_2 \geq 30$

$4X_1+3X_2 \geq 60$

$X_1 \geq 0,\ X_2 \geq 0$

OR

(b) Explain briefly the steps in work sampling study. **07**

Q.3 **(a)** Find the basic initial basic feasible solution for following transportation problem by VAM. **07**

	D_1	D_2	D_3	D_4	Availability
O_1	11	13	17	14	250
O_2	16	18	14	10	300
O_3	21	24	13	10	400
Demand	200	225	275	250	

(b) Justify why method study proceed work measurement. **07**

OR

Q.3 **(a)** Vitamin C and Vitamin E are found in two different fruits F_1 and F_2. One unit of F_1 contains 3 units of vitamin C and 2 units of vitamin E. Similarly, one unit fruit F_2 of contain 2 units of vitamin C in it and 2 units of vitamin E in it. A patient needs minimum 30 units of vitamin C and 20 units of vitamin E. Also one unit of fruit F_1 costs Rs. 20 and one unit of fruit F_2 costs Rs. 25. The problem, the hospitals faces is to find such units of fruit F_1 and F_2, which should be supplied to the patient at minimum cost. Formulate LPP. **07**

(b) Explain need for air conditioning and humidification in textile industry. **07**

Q.4 **(a)** Give the application of any one recording technique in method study. **07**

(b) The following table gives the activity and duration of a construction project. **07**

Activity	1-2	1-3	2-3	2-4	3-4	4-5
Duration(Days)	20	25	10	12	6	10

Draw the network for the project and find critical path.

OR

Q.4 **(a)** Using the following cost matrix determine a) Optimal job Assignment b) The cost of Assignments. **07**

Job						
Mechanic		J_1	J_2	J_3	J_4	J_5
	A	10	3	3	2	8
	B	9	7	8	2	7
	C	7	5	6	2	4
	D	3	5	8	2	4
	E	9	10	9	6	10

(b) Define boiler. List essential parts of boiler. **07**

Q.5 **(a)** An assembly is to be made from two parts X and Y. Both parts must be turned on a lathe. Y must be polished whereas X need not to be polished. The sequence of activity, together with their predecessors, is given below. **07**

Activity	Description	Predecessor activity
A	Open Work order	----
B	Get material for X	A
C	Get material for Y	A
D	Turn X on lathe	B
E	Turn Y on lathe	B,C
F	Polish Y	E
G	Assemble X and Y	D,F
H	Pack	G

Draw network diagram of activities for the project.

(b) Define: CPM, PERT, total float, free float, independent float, activity, event. **07**

OR

Q.5 **(a)** Define: moist air, dry bulb temperature, wet bulb temperature, humidity ratio, absolute humidity, relative humidity, degree of saturation. **07**

(b) Explain humidification by steam injection with neat sketch. **07**

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