Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–III (NEW) EXAMINATION – SUMMER 2019

Subject Code: 2132905   **Date: 15/06/2019**
Subject Name:Basic Engineering in Textile
Time: 02:30 PM TO 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.**

                                                                          MARKS

Q.1 **(a)** List out the factors affecting the choice of a Boiler.   **03**

(b) Explain functions or elements of preventive maintenance.   **04**
(c) What is coal fired boiler? Explain the working of any fire tube boiler. boiler with neat sketch.   **07**

Q.2 **(a)** Write short note on SIMO chart.   **03**
(b) Draw two handed process chart for assembly of nut and bolt and give summary for same.   **04**
(c) A company has a team of four salesmen and there are four districts where the company wants to start their business. After taking into account the capabilities of salesmen and the nature of districts, the company estimates that profit per day in rupees for each salesmen in each salesmen in each district is as below   **07**

		District			
		1	2	3	4
	A	16	10	14	11
	B	14	11	15	15
Salesman	C	15	15	13	12
	D	13	12	14	15

Find the assignment of salesmen to various districts which will yield maximum profit.

OR

(c) By graphical method solve the following LPP   **07**

Maximize $Z = 8x_1 + 5x_2$
Subject to, $2x_1 + x_2 \leq 500$
                 $x_1 \leq 150$
                 $x_2 \leq 250$
                 $x_1 \geq 0, x_2 \geq 0$

Q.3 **(a)** Define Method Study. Give the list of Work Measurement techniques.   **03**
(b) Define: RH, WBT,DPT, humidification   **04**
(c) Enlist various feed water treatment. Explain any one of them.   **07**

OR

Q.3 **(a)** Define predetermined motion time system.   **03**
(b) What is standard time? Describe briefly how you will calculate   **04**

"standard time" from the observed time obtained by time study?

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

Q.4 **(a)** Differentiate between break down and preventive maintenance.   **03**

(b) The observe time for an element is 0.7 minutes; the rating factor is 90% and 20% is given as other allowances. Calculate standard time. **04**

(c) The following table shows the jobs of a network along with their time estimates. The time estimates are in days. **07**

Job	1-2	1-6	2-3	2-4	3-5	4-5	5-8	6-7	7-8
a	3	2	6	2	5	3	1	3	4
m	6	5	12	5	11	6	4	9	19
b	15	14	30	8	17	15	7	27	28

Draw the project and find the critical path. Find the probability of the project being completed in 31 days.

OR

Q.4 **(a)** Explain about micro-motion study. **03**

(b) Explain package type of boiler in detail. **04**

(c) Solve the LPP **07**

Minimize $Z = 4x_1 + x_2$

Subject to, $3x_1 + x_2 = 3$

$4x_1 + 3x_2 \geq 6$

$x_1 + 2x_2 \leq 4$

$x_1 \geq 0, x_2 \geq 0$

Q.5 **(a)** Explain SREDDIM in detail. **03**

(b) What is man and machine chart? How it is used to make a method analysis **04**

(c) The following table shows the jobs of a project with their duration in Days. Draw network and determine critical path. Also calculate all the floats **07**

Jobs	1-2	1-3	1-4	2-3	2-6	3-5	3-6	4-5	5-6
Days	23	8	20	16	24	18	4	19	10

Draw the network and determine critical path. Also calculate all the floats.

OR

Q.5 **(a)** What do you mean by Therblings. Give the Symbols, abbreviations and meaning any four. **03**

(b) Explain pH value of water and its importance. **04**

(c) Find the optimal solution to the following transportation problem in which the cell contains the transportation cost in rupees. **07**

	W_1	W_2	W_3	W_4	W_5	Availability
F_1	7	6	4	5	9	40
F_2	8	5	6	7	8	30
F_3	6	8	9	6	5	20
F_4	5	7	7	8	6	10
Demand	30	30	15	20	5	100

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