GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III(New) • EXAMINATION - WINTER 2016							
Sub	ject	Code:2132905	Da	te:11/0	1/2017		
Sub	iect	Name:Basic Engineering in Textile					
Tim	, e:10):30 AM to 01:00 PM	Т	otal Ma	arks: 70		
Instr	uction	ns:	_		•= ==;; • • •		
	1.	Attempt all questions.					
	2.	Make suitable assumptions wherever necessary.					
	3.	Figures to the right indicate full marks.					
					MARKS		
Q.1		Short Questions			14		
	1	Which time is defined the smallest time to complete the acti	vity if	•			
		everything goes well?					
	2	What is the order of procedure in method study?					
	3	Define Linear programming problem (LPP)					
	4	How to determine key column in simplex method?					
	5	How to convert maximization assignment problem into min	imizat	ion			
		assignment problem?					
	6	When assignment problem is called a balanced assignment	proble	m?			
	7	Define relaxation allowances					
	8	Define performance rating					
	9	What is natural circulation boiler?					
	10	Which maintenance is also called run to failure maintenance	e?				
	11	Define wet bulb temperature					
	12	Define total float					
	13	How to calculate expected time of an activity in PERT					
•	14	Which symbol is used for inspection in method study?					
Q.2	(a)	(a) What is maintenance? What are the types of maintenance?					
	(b)	Explain any one type of maintenance in detail	Ohte	in the	04		
	(C)	Draw a network corresponding to the following information	i. Obla	.in the	07		
		early and rate start and completion times, and determine crit	Ical				
		$\begin{array}{c c c c c c c c c c c c c c c c c c c $	57	67			
		Activity 1-2 1-5 2-0 5-4 5-5 4-0 5-0	5-7	0-7			
		Duration 4 6 8 7 4 6 5	19	10			
					07		
	(C)	Use the simplex method to solve the following LP problem Maximize $7 - 2X + 2X + 5X$			07		
		$\begin{array}{llllllllllllllllllllllllllllllllllll$					
		Subject to, $X_1 + 2X_2 + X_3 \ge 450$ $3X_1 + 2X_2 \le 260$					
		$3X_1 + 2X_3 \ge 200$ $X_1 + 4X_2 \le 420$					
		$X_1 + 4X_{2} + 420$ $X_1 > 0 X_2 > 0 X_2 > 0$					
0.3	(a)	How will you find probability of completing a PERT	projec	t bv a	03		
χ.υ	(u)	particular due date?	projec	i og u	00		
	(b)	List down the PERT procedure			04		
	(~)	You are given the information about the cost of perform	ing di	fferent	07		
	(c)	iobs by different persons.					
	<- <i>J</i>	Joes of anteion persons.					
		Person $1(P_1)$ cannot be assigned to job 3, and Person $3(P_3)$ cannot be					
		assigned to job 4. Find the optimal assignment in a way that total cost					
		can be minimized.					

Job					
Person	\mathbf{J}_1	J_2	J_3	J_4	J_5
P ₁	27	18		20	21
P ₂	31	24	21	12	17
P3	20	17	20		16
P4	22	28	20	16	27

OR

- Q.3 (a) Name the various recording techniques used in method study
 - (b) Give various symbol used in recording techniques with their meanings
 O4
 Discuss in details with definition and suitable illustration man and
 O7
 (c) machine chart
 - (c) machine chart
- Q.4 (a) List out the factors affecting the choice of a Boiler.
 - (b) Differentiate fire tube and water tube boilersSolve the transportation problem by North west corner method and
 - (c) check its optimality by MODI method.

		Warehouses			
		\mathbf{W}_1	\mathbf{W}_2	W_3	Supply
	O ₁	2	2	3	10
Origin	O ₂	4	1	2	15
	O ₃	1	3	1	40
	Demand	20	15	30	65
OP					

OR

- Q.4 (a) Explain humidification and dehumidification.
 (b) Explain need for air conditioning and humidification in textile industry.
 A company produces 2 types of hats A and B. every hat A requires
 (c) twice as much labor time as the second hat B. if company produces only
 - hat B then it can produce a total of 500 hats per day. The market limits daily sales of hat A and B to 150 and 250 respectively. The profits on hat A and B Rs.8 and Rs. 5 respectively. Solve graphically to get the optimal solution of LPP.
- Q.5 (a) Define normal time and standard time
 (b) State and explain in brief the various allowance to be considered while
 04 estimating the standard time
 Describe an algorithm for the solution of the assignment problem
 07
 - (c)

OR

- Q.5 (a) What are the common errors in network construction? 03
 - (b) Explain any one feed water treatment method with neat sketch. 04 07
 - (c) The time estimates for activity given below.

	Time				
Activity	Optimistic	Most likely	Pessimistic		
	time(t _o)	time (t _m)	time(t _p)		
1-2	1	1	7		
1-3	1	4	7		
1-4	2	2	8		
2-5	1	1	1		
3-5	2	5	14		
4-6	2	5	8		
5-6	3	6	15		

Draw project network, expected project length, standard deviation and variance of project. Also calculate probability that the project will be completed at least 4 weeks earlier than expected time?

03

03

04

07