GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (New) EXAMINATION - WINTER 2015

Subject Code:2142905 Date:28/12/2015

Subject Name: Statistical Quality Control & Textile Costing

Time: 2:30pm to 5:00pm 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 is Quality? Explain different dimensions of Quality in detail.
 (b) For the following values, find out (i) Mean Deviation (ii) Percentage
 Mean Deviation (iii) Variance (iv) Standard Deviation (v) C.V.%

No.	1	2	3	4	5	6	7	8	9	10
values	42	39	45	47	38	39	46	44	41	37

- Q.2 (a) Write short note on 1) Frequency distribution curves & 2) Control charts.
 - (b) Explain Normal and Poisson distribution with their properties. 07

OR

- (b) Discuss in brief about different statistical methods for quality control and improvement.
- Q.3 (a) What is DMAIC process? Discuss different steps of DMAIC with 07 suitable diagram.
 - (b) Five observations are taken daily, for Six days from a production process. Using following observations, find out LCL and UCL values for X-bar and R charts.

Date	Observation						
1	50	60	58	52	58		
2	56	59	53	54	53		
3	54	58	55	57	59		
4	56	57	52	56	53		
5	60	53	55	56	56		
6	58	61	59	56	54		

(Take $A_2 = 0.577$, $D_3 = 0$, $D_4 = 2.114$)

OR

- Q.3 (a) Highlight approach and philosophy of W. Edwards Deming in quality 07 management.
 - (b) In relation to Design of experiments, define 1) Factor, 2) Level,
 3) Response & 4) Test Run. Also discuss significance and use of DOE.

Q.4 (a) Define – "Cost". Also explain in detail about Material cost.

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(b) Conduct the analysis of variance (one way classification) for the following data. State whether the lea count differ between the bobbins.

Lea No.	Bobbin No.					
	1	2	3	4	5	6
1	22	23	24	21	20	19
2	21	20	22	23	24	19
3	20	19	21	20	22	23
4	18	24	20	19	22	24

Table value of F for 5, 18 d.f. at 5% level=2.77 & 1% level=4.25

OR

Q.4 (a) Discuss in brief about Labour cost.

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(b) What are overheads? Discuss various types of overheads briefly.

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Q.5 (a) Define – Primary Data, Secondary Data, Population and Sample. Also list out different types of Sampling methods & Data collection techniques.

(b) Write short note on -1) Probability & 2) Break even Analysis.

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Q.5 (a) From the following given values, find the coefficient of correlation 07 between x and y by Rank correlation method:

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у	18	12	4	6	7	9	3	10	2	5

(b) A spinning mill is working with following mix:

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Cotton Variety	Proportion (%)	Cost/kg. (in Rs.)
A	8	5.84
В	88	5
С	4	3

Calculate clean cotton cost/kg. if yarn realization is 86% & that out of the 14 kg. lost per 100 kg. put through, 8 kg. are saleable at 1.75 Rs./kg.
