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Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem-VI Examination May 2011

Subject code: 162901

Subject Name: Statistical Quality Control & Textile Costing

Date:16/05/2011 **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)** From the following Textile mill values, find out (i) Mean Deviation (ii) Percentage Mean Deviation (iii) Variance (iv) Standard Deviation (v) C.V.% **07**

No.	1	2	3	4	5	6	7	8	9	10
values	27	22	24	29	31	21	23	20	32	21

(b) Explain Normal Distribution & Binomial Distribution. **07**

Q.2 **(a)** Five observations are taken daily, for Six days from a production process. Find out LCL and UCL for X-bar and R charts. **07**
($A_2 = 0.577$, $D_3 = 0$, $D_4 = 2.114$)

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

(b) Write in detail of different control charts. **07**

OR

(b) Conduct the analysis of variance (one way classification) for the following data. Whether the lea count differ between the bobbins ? **07**

Lea No.	Observation					
	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

Q.3 **(a)** Twelve mule cops are tested for count and the mean found to be 64.2s. The standard deviation of the twelve results is 2.2 Counts. If the nomial count is 62s, is the mule spinning too fine ? **07**
(Corresponding t values for degree of freedom (v) at 5% =2.201 and at 1% = 3.106)

(b) Write in detail concept of sampling and its methods. **07**

OR

Q.3 **(a)** Write down different methods studying correlation. Discuss in detail about scatter method. Also write down merits and demerits of it. **07**

(b) Find out 'r' from the following data of length and weight by Karl Pearson's method of correlation. **07**

Length	6	8	12	14	20
weight	18	22	28	30	32

Q.4 **(a)** (i) Write down merits and demerits of Karl Pearson's method of correlation. **07**
(ii) Discuss in detail about linear correlation.

(b) Discuss in detail various steps in planning of an experiment. **07**

OR

Q.4 **(a)** Describe various elements of capital cost and running cost for textile mill. **07**

(b) What are overheads? Discuss various types of overheads briefly. **07**

Q.5 **(a)** Describe marginal costing and its importance in textile mill in detail. **07**

(b) What is break even analysis? Explain with suitable diagram. **07**

OR

Q.5 **(a)** (i) Define Treatment & Randomization. **07**
(ii) Discuss in detail about "Latin Square Design".

(b) A spinning mill is working with following mix : **07**

Cotton Variety	% in mix	Cost/kg. (in Rs.)
X1	10	4
X2	20	5
X3	30	6
X4	40	7

Calculate clean cotton cost if yarn realization is 75% & out of 25% loss, 8% is saleable at 2.50 Rs./kg.

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