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SF-8365

B. E. - III (Sem. - VI) (Textile Technology) Examination

May/June – 2011

Statistical Quality Control & Textile Costing

(New Syllabus)

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 3 (SEM. - 6) (TEXTILE TECHNOLOGY)**

Name of the Subject :

☛ **STATISTICAL QUALITY CONTROL & TEXTILE COSTING (NEW SYLLABUS)**

☛ Subject Code No. : **8 3 6 5** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answers to the two sections must be written in **separate** answer books.
(3) Tie two sections **separately**.
(4) Figures to the **right** indicate full marks.
(5) Assume any other data required.

SECTION - I

1 (a) Answer the following :

(i) _____ divided the area under the frequency curve into quarters. **1**

(ii) _____ is the middle value of a series of values arranged in order of magnitude. **1**

(iii) In Frequency distribution, what are the two more common forms of graphical representation ? **2**

(iv) The variability of a set of results may be expressed by the _____ . **1**

(v) Define Mean Range and P.M.R. **2**

(vi) The most widely used measure of dispersion is _____. **1**

(vii) Define Mode. **1**

(viii) What is Standard Deviation ? **1**

(b) Explain Normal Distribution and Poisson Distribution. **10**

2 (a) Five observations are taken daily, for ten days from a production process. Find out LCL and UCL for X-bar and R charts. **10**

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

Date	Observation				
1	70	80	78	72	78
2	76	79	73	74	73
3	74	78	75	77	79
4	76	77	72	76	73
5	80	73	75	76	76
6	78	81	79	76	74
7	77	75	75	76	77
8	79	75	94	77	76
9	76	75	75	74	75
10	71	73	70	71	73

(b) Two yarns, each of 32s cotton count, were tested for lea strength, Thirty tests were made on each yarn and the following results were obtained. **5**

	YARN-A	YARN-B
No. of tests	30	30
Mean lea Strength (lb)	58	65
Standard deviation	7.8	8.2

Is there a real difference between the lea strengths ? (Corresponding *t* values for degree of freedom (v) at 5%=1.96 and at 1%=2.58)

OR

2 (a) The mean range of the count test results on a 40s cotton yarn is 4.2. Five bobbins are tested in each sample. Calculate : **10**

(a) Standard Deviation

(b) Variance

(c) C.V.%

(d) Mean Deviation

(e) P.M.D.

(Take a_n=0.4299)

(b) State the difference between variable and attribute charts. **5**

3 Write short notes : (any **three**) **15**

(i) Concept of Sampling and factors affecting Sample selection.

(ii) Binomial Distribution.

(iii) Define Critical difference, T test, F test

(iv) Types of Control Charts.

SECTION - II

4 (a) Answer the following :

(i) Explain Randomization. **2**

(ii) State only equation to find out 'r' by Spearson's method of Rank correlation. **1**

(iii) What will be the interpretation of value of 'r' obtained from an data analysis if r=1, r=0 and r= –1. **3**

(iv) All tenters are skilled labour. True of false. **1**

(v) _____ cost is the largest component of final Product cost in textile mills. **1**

(vi) Explain the term Direct cost and Indirect cost. **2**

(b) Discuss in detail about "Latin Square design". **5**

(c) If Carding department has 20 cards each having 2HP main motor and 1HP auxiliary motor, calculate Powercost/month if Efficiency is 90%, load factor is 0.8 and Rate of Power is Rs.6.50/unit. **5**

5 (a) Discuss in detail about Scatter method and Karl Pearson's method of studying Correlation along with their merit and demerits. **10**

Also state other methods of studying Correlation.

(b) The value of 'r' obtained from a sample of 16 pairs of observation drawn a population is 0.7. Calculate P-E of 'r' and interprete. Also find the limits of population of 'r'. **5**

OR

5 (a) Describe various elements of Capital cost and Running cost in detail for textile mills. **10**

(b) What is an over head ? State different types of overheads and briefly discuss how it affects yarn cost in spinning mills. **5**

6 Write short notes : (any **three**) **15**

(a) Replication

(b) Specification and selection of treatment in Design of Experiment.

(c) Marginal Costing

(d) Break even Analysis.
