

D 93204

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Name.....

Reg. No.....

**FIRST SEMESTER M.Com. DEGREE (SUPPLEMENTARY) EXAMINATION  
NOVEMBER 2020**

(CUCSS)

M.Com.

MC1C2—QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

(2015 Admissions)

Time : Three Hours

Maximum : 36 Weightage

**Part A**

*Answer all questions.  
Each question carries 1 weightage.*

1. What are the uses of standard error ?
2. Explain rank correlation.
3. What are run charts ?
4. What is the application of Khruskalwallis test ?
5. How to access descriptive statistics in SPSS ?
6. Spot any application of non parametric test.

(6 × 1 = 6 weightage)

**Part B**

*Answer any six questions.  
Each question carries 3 weightage.*

7. Explain variance analysis.
8. Discuss the role of quantitative techniques in decision making.
9. Discuss the steps in the construction of control chart.
10. Discuss the application of rank correlation.

**Turn over**

11. Samples of 1000 transistors are drawn randomly from the output of a process that produces several thousands units daily. Sample items are inspected for quality and defective transistors are rejected. The results of series of 20 samples are shown below :

Sample number :	1	2	3	4	5	6	7	8
No. of inspected :	100	100	100	100	100	100	100	100
No of defects :	9	17	8	7	12	5	11	16
Sample number :	9	10	11	12	13	14	15	16
No of inspected :	100	100	100	100	100	100	100	100
No of defects :	14	15	10	6	7	18	16	10
Sample number :	17	18	19	20				
No of inspected :	100	100	100	100				
No of defects :	5	14	7	13				

Determine the control limits.

12. Sample of sales in similar shops in two towns are taken for a new product with the following result :

Town	Mean sales	Variance	Size of sample
A	57	5.3	5
B	61	4.8	7

Is there any evidence of difference in sales in two towns ? Use 5% significance.

13. A What should be the size of sample, to be drawn from a population, to estimate percent defective, within 2 % of true value, with 95% level of confidence ? For this 100 items were selected, and obtained 2 defectives.
- B A sample of 300 screws has a mean length of 3.4 cm with standard deviation of 2.61 cm. Can it be regarded as a sample from a population with mean length of 3.25 cm, at  $\alpha = 0.01$  ?
14. A factory was producing electric bulbs of average length of 2000 hours. A new manufacturing process was introduced with the hope of increasing the length of the life of bulbs. A sample of 25 bulbs produced by the new process were examined and the average length of life was found to be 2200 hours. Examine whether the average length of bulbs was increased assuming the length of lives of bulbs follow normal distribution with  $\sigma = \alpha 0.05$ .

(6 × 3 = 18 weightage)

**Part C**

Answer any **two** questions.  
Each questions carries 6 weightage.

15. A panel of 2 judges, P and Q graded by 7 dramatic performances by independently awarding marks as follows :

Performance	1	2	3	4	5	6	7
Marks by P	46	42	44	40	43	41	45
Marks by Q	40	38	36	35	39	37	41

The eighth performance, for which judge could not attend, was awarded 37 marks by judge P. If judge Q has been also present, how many marks would be expected to have been awarded by him to eighth performance ?

16. The following data present the number of units of production per day turned out by 5 different workers using 4 different types of machines :

	MACHINE			
	A	B	C	D
1	44	38	47	36
2	46	40	52	43
3	34	36	44	32
4	42	38	46	33
5	38	42	49	39

- (a) Test whether the mean productivity is the same productivity is same for the different types of machines.
- (b) Test whether 5 men differ with respect to mean production.
17. Discuss the Descriptive statistics in SPSS (Detailed explanation required).

(2 × 6 = 12 weightage)