

**D 32651**

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Name.....

Reg. No.....

**FIRST SEMESTER M.Com. DEGREE (CBCSS) REGULAR/SUPPLEMENTARY  
EXAMINATION, NOVEMBER 2022**

MCM 1C 03—QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

(2019 Admission onwards)

Time : Three Hours

Maximum Weightage : 30

**Part A**

*Answer any **four** questions.*

*Each question carries a weightage 2.*

1. Define binomial distribution.
2. What is statistical estimation ?
3. What is Type II Error ?
4. What is ANOVA ?
5. What is coefficient of determination ?
6. What is degree of freedom ?
7. Briefly explain the uses of MS Excel in quantitative methods.

(4 × 2 = 8 weightage)

**Part B**

*Answer any **four** questions.*

*Each question carries a weightage 3.*

8. The ranking of 10 students in two subjects A and B are as follows :

A : 6 5 3 10 2 4 9 7 8 1

B : 3 8 4 9 1 6 10 7 5 2

Calculate rank correlation coefficient.

9. The equations of two lines of regression obtained in a correlation analysis are the following :

$$2x = 8 - 3y \text{ and } 2y = 5 - x.$$

Obtain the value of the correlation coefficient.

10. A coin is tossed six times. What is the probability of obtaining four or more heads ?

**Turn over**

11. The income distribution of workers in a certain factory was found to be normal with mean =Rs. 1,000 and  $sd$ =Rs. 100. There were 180 persons getting above Rs. 1,200. How many persons were there all ?
12. In a simple random sample of 600 men taken from a big city, 400 are found to be smokers. In another simple random sample of 900 men taken from another city 450 are smokers. Do the data indicate that there is a significant difference in the smoking habits in the two cities ?
13. A random sample of size 16 has 53 as mean. The sum of the squares of the deviations taken from mean is 135. Can this sample be regarded as taken from the population having 56 as mean ? Obtain 95 % confidence limits (for  $v = 15, t_{0.05} = 2.13$ ).
14. Total of the product of deviations of X and Y series = 3044  
 Number of pairs of observations = 10  
 Total of the deviations of X series = - 170  
 Total of the deviations of Y series = - 20  
 Total of the squares of deviations of X series = 8288.  
 Total of the squares of deviations of Y series = 2264  
 Find out the coefficient of correlation when the assumed means of X series and Y series are 82 and 68 respectively.

(4 × 3 = 12 weightage)

**Part C***Answer any two questions.**Each question carries a weightage 5.*

15. In a certain examination the percentage of passes and distinctions were 46 and 9 respectively. Estimate the average marks obtained by the candidates, the minimum pass and distinction marks being 40 and 75 respectively. (assume the distribution of marks to be normal).  
 Also determine what would have been the minimum qualifying marks for admission to a re-examination of the failed candidates had it been decided that the 25 % of them should be given another opportunity of being examined.
16. Suppose you are working as a purchase manager for a company. The following information has been supplied to you by two manufactures of electric bulb :

|                               |     | Company A | Company B |
|-------------------------------|-----|-----------|-----------|
| Mean life (in hours)          | ... | 1300      | 1248      |
| Standard deviation (in hours) | ... | 82        | 83        |
| Sample size                   | ... | 100       | 100       |

Which brand are you going to purchase if you desire to take a risk to 5 % ?

17. From the following data, obtain the two regression equations :

Sales : 91 97 108 121 67 124 51 73 111 57

Purchase : 71 75 69 97 70 91 39 61 80 47

18. What is normal distribution ? What are its properties ?

(2 × 5 = 10 weightage)