

QP CODE: 22002472



Reg No : .....

Name : .....

**M.COM DEGREE (CSS) EXAMINATION , NOVEMBER 2022**

**Second Semester**

**CORE - CM010204 - QUANTITATIVE TECHNIQUES**

M.COM FINANCE AND TAXATION, M.COM FINANCE AND TAXATION (SF), M.COM  
MANAGEMENT AND INFORMATION TECHNOLOGY (SF), M.COM MARKETING AND  
INTERNATIONAL BUSINESS (SF), M.COM MASTER OF COMMERCE AND MANAGEMENT  
2019 ADMISSION ONWARDS

6D7891E2

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

*Answer any **eight** questions.*

*Weight **1** each.*

1. Define Quantitative Techniques.
2. 10 unbiased coins are tossed simultaneously. What is the probability of getting 2 heads?
3. In a normal distribution, find (i)  $P(z \leq -1.97)$ , (ii)  $P(z \geq 1.95)$
4. What are the important methods of sampling?
5. A Sample of 10 pairs of value of X and Y has correlation coefficient 0.5. Is the correlation significant?
6. Write a note on the procedure involved in Wilcoxon Matched -pairs Test.
7. Write a brief note on Mann-Whitney U Test.
8. What do you mean by Acceptance Sampling Plan?
9. What is multi dimensional scaling?
10. What is the basic purpose of factor analysis?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

*Answer any **six** questions.*

*Weight **2** each.*

11. One percent of speakers produced by a company are known to be defective. If a random sample of 50 calculators is selected for inspection, calculate the probability of getting no defectives.



12. Describe briefly the characteristics of the normal probability distribution. Why does the normal distribution occupy a prominent place in statistical analysis?
13. Mean of 2 random samples of size 9 & 7 are 196.42 and 198.82 respectively. The sum of squares of deviations from mean are 26.94 and 18.73 respectively. Can these samples be considered to have been drawn from same population? Apply t test.
14. On inspection of random sample of 500 items produced by a machine, 30 are found to be defective. Does this justify the assumption that the machine is producing 2% defective items on an average?
15. A test was given to 5 students chosen at random from M.Com class in three universities. The scores obtained were as follows:

University	Scores				
A	90	70	60	50	80
B	70	40	50	40	50
C	60	50	60	70	60

Perform analysis of variance and test whether there is any significant difference of scores obtained by students in three universities.

16. Briefly explain the non-parametric tests.
17. What is SQC? Describe its application in business.
18. What are the limitations of multi-variate analysis?

(6×2=12 weightage)

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. As a tailor prepared suits for a number of his customers after the preliminary trials and retails, he had to alter the suits as follows:

By applying Poisson distribution, calculate the theoretical frequencies.

No of trials after preliminary trial	0	1	2	3
No. of cases	200	75	20	5

20. For a sample of 100 labourers from Kerala, the average daily wages is Rs. 10.50 with SD Rs.1.50. For a sample of 150 labourers from Tamil Nadu the corresponding figures are Rs. 8.00 and Rs. 1.00 respectively. Can you conclude that the average wages of workers in Kerala are more than that of workers in Tamil Nadu?
21. In a survey of 200 boys of whom 75 were intelligent, 40 had educated fathers, while 85 of the unintelligent boys had uneducated fathers. Do these figures support the hypothesis that educated fathers have intelligent boys?

( Value of Chi-square for 1 d.f.is 3.841)



22. The mean and range of observations relating to 6 samples of size 8 relating to a production process are given below. Check whether the process is in control or not using relevant charts

Use for  $n=8$   $A_2 = 0.373$ ,  $D_3 = 0.136$ ,  $D_4 = 1.864$

Samples	1	2	3	4	5	6
Mean	8.6	14.4	11.8	10.8	10.9	13.6
Range	10.1	15.1	18.9	14	10.6	17

(2×5=10 weightage)