

QP CODE: G 1628



Reg No :

Name :

M.Com DEGREE (CSS) PRIVATE EXAMINATION, NOVEMBER 2022

Second Semester

COMMERCE

CORE - CM010204 - QUANTITATIVE TECHNIQUES

2019 ADMISSION ONWARDS

C26E0CE7

Time: 3 Hours

Weightage: 30

Instructions (Applicable for 2020 & 2021 Admissions only) : This question paper contains two sections. Answer section I questions in the answer book provided. Section II Internal examination questions must be answered in the question paper itself. Follow the detailed instructions given under section II.

SECTION I

Part A (Short Answer Questions)

Answer any **eight** questions.

Weight **1** each.

1. Bring out the limitations of Quantitative Techniques.
2. Write down the density function of the Normal Distribution stating the parameters therein.
3. In a normal distribution, find $P(z \geq 2.01)$.
4. Distinguish between parameter and statistic
5. What is Type I error?
6. Bring out the advantages of non-parametric tests.
7. Write a note on Two Sample Sign Test
8. Samples of 100 items have been taken for 14 days. A total of 140 items was found to be defective. Prepare values for P chart.
9. What is multi-variate analysis?
10. When do we use MANOVA?

(8×1=8 weightage)

Part B (Short Essay/Problems)

Answer any **six** questions.

Weight **2** each.

11. Take 100 sets of 10 tosses of an unbiased coin. In how many cases do you expect to get (i) 6 heads and 4 tails and (ii) at least 9 heads?





12. Elina Co.Ltd. manufacturing staple pins, markets its products in packets of 1000 and there is a small chance of 0.001 of a staple pin to be defective. The company guarantees not more than four defective pins in each packet. (i)What is the probability that a packet will the guarantee? (ii)If the company sells 10000 packets per month, what is the expected number of guarantee claims in a month?
13. It is claimed that a random sample of 100 tyres with mean life of 15269 Km. is drawn from a population of tyres which has a mean life of 15200 Km and SD of 1248 Km. Test the validity of the claim.
14. A soap manufacturing company was distributing a particular brand of soap through a number of retail shops. Before a heavy advertisement campaign, the mean sales per week per shop was 140 dozens. After the campaign, a sample of 20 shops was taken and mean sales was found to be 147 dozen with standard deviation 16. Can you consider the advertisement effective?
15. Give a Specimen of (i) ANOVA table for one way analysis (ii) ANOVA table for two way analysis
16. Explain Kruskal Wallis H Test and state its importance.
17. What is SQC? What are its uses?
18. What are the assumptions for carrying out multiple regression?

(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any **two** questions.

Weight **5** each.

19. Fit a normal curve to the following observations:

Class Value	11-20	21-30	31-40	41-50	51-60	61-70	71-80
Frequency	12	28	40	60	32	20	8

- 20.

1. From the following data relating to the production of steel pipes by 4 different machines, examine by ANOVA technique whether the machine means could be treated as constant or not. (The details of diameters in inches of various samples of the four screw types are presented)

P	15	16	17	17	18	19	14	17	21	14
Q	17	16	15	15	14	16	16	13	13	12
R	21	20	24	27	24	26	21	25	27	23
S	18	20	19	17	18	16	16	14	14	12

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. You are given the values of sample means and the range for 10 samples of size 5 each. Draw Mean and Range charts and comment on the state of control of the process.

Sample	1	2	3	4	5	6	7	8	9	10
Mean	43	49	37	44	45	37	51	46	43	47
R	5	6	5	7	7	4	8	6	4	6

(2×5=10 weightage)

