

21001670



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Reg. No.....

Name.....

M.Com. DEGREE (C.S.S.) EXAMINATION, MARCH 2022

First Semester

Faculty of Commerce

QT 01 C05—QUANTITATIVE TECHNIQUES

(2012–2018 Admissions—Supplementary/Mercy Chance)

Time : Three Hours

Maximum Weight : 30

Section A

Answer any five questions.

Each question not to exceed a page.

Each question carries 1 weight.

1. Define Quantitative Technique.
2. What is a Non-Parametric test ?
3. Expand CLT and state the concept.
4. What do you understand by Z-transformation ?
5. What is variance ratio test ?
6. What is a simple hypothesis ? Give an example.
7. What do you mean by SQC ?
8. State the requirements of a probability distribution.

(5 × 1 = 5)

Section B

Answer any five questions .

Each answer not to exceed two pages.

Each question carries 2 weight.

9. Briefly explain the basic components of a control chart.
10. Discuss the important principles of the Sampling theory.
11. What is Poisson distribution ? State its properties.





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12. From the following data obtained from a sample of 1000 persons calculate the standard error of the mean :

Earnings in Rs.	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of persons	50	100	150	200	200	100	100	100

If the average of the population were Rs.42 what conclusion can you arrive about the reliability of the sample ?

13. 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 were 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 ?
14. The following data relates to the number of accidents reported in 11 districts in the state just before and after 2 months of starting monsoon with heavy rain.

District	1	2	3	4	5	6	7	8	9	10	11
Before	18	26	23	20	20	24	23	21	26	36	28
After	18	24	25	20	16	25	20	20	26	33	26

Based on above data, can it be concluded that the road accidents have been increased after starting monsoon. (Use sign test).

15. A firm is trying to determine the market for a new product. They have randomly selected 75 people in each of 5 different age groups and introduced the product to them. The results of the survey are as follows :

Future Activity	Age Group				
	18 - 29	30 - 39	40 - 49	50 - 59	60 - 69
Purchase frequently	12	18	17	22	32
Seldom purchase	18	25	29	24	30
Never purchase	45	32	29	29	13

Calculate the sample Chi-square value at the level of significance - 0.01; test whether the future activity is same across the age groups.





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16. An objective - type test was conducted among 5 students each from state and CBSE syllabus schools and their marks are as follows :

State (S)	38	28	46	22	32
CBSE (C)	76	58	64	85	92

Based on the above data, can you say that there is significant difference between the performance of students from State and CBSE schools ?

(5 × 2 = 10)

Section C

Answer any **three** questions.
Each question not to exceed **five** pages.
Each question carries 5 weight.

17. Following are the values of mean and range for 8 samples of 6 items each. Prepare R-Chart and comment on the state of control of the production process :

Sl.No.	1	2	3	4	5	6	7	8	Total
Mean	26	28	23	30	28	28	23	22	208
Range	20	31	11	4	29	28	13	8	144

18. In a sample of 1000 children, 400 came from higher income group and rest from lower income group. The number of delinquent children in these groups was 50 and 200 respectively. Calculate the Yule's coefficient of association between delinquency and income groups.
19. Following table shows the details of wage rate per day applicable to 3 categories of skilled workers welder, fitter and painter. Based on this data, can you make a conclusion that the wage rate applicable to these 3 categories of workers is same ? (Use Kruskal Wallis test)

Firm	Welder (W)	Fitter (F)	Painter (P)
A	184	360	144
B	328	440	240
C	432	480	272
D	528	560	320
E	624	576	352

Turn over





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20. Ten school boys were given a test in Mathematics. Then, they were given a month's tuition and another test was held at the end of it. Can we conclude from their marks in two testes given below that they have benefited by the extra coaching ?

Sl. No.	1	2	3	4	5	6	7	8	9	10
First Test	10	13	15	10	18	17	8	7	12	9
Second Test	12	12	17	12	14	16	16	12	12	18

21. Describe Hypothesis Testing. Also explain the types of errors in Hypothesis Testing.
22. Discuss the role and applications of quantitative techniques in business and industry.

 $(3 \times 5 = 15)$ 