

F 7831

(Pages : 3)

Reg. No.....

Name.....

M.Com. DEGREE (C.S.S.) EXAMINATION, FEBRUARY 2014

First Semester

Faculty of Commerce

QT01C05—QUANTITATIVE TECHNIQUES

(2012 Admission onwards)

Time : Three Hours

Maximum Weight : 30

Section A

Answer any five questions.

Each answer not to exceed a page.

Each question carries 1 weight.

1. What is Mann Whitney U Test ?
2. What is significance of SQC in business ?
3. Distinguish between Binomial and Poisson Distribution.
4. State the properties of Standard Normal Curve.
5. What do you mean by statistic and parameter ?
6. What is the significance of Yule's co-efficient of association ?
7. Differentiate between point and interval estimate.
8. What is Z transformation ?

(5 × 1 = 5)

Section B

Answer any five questions.

Each answer not to exceed two pages.

Each question carries 2 weight.

9. For a random sample of 100 workers in a plant employing 1200, seventy prefer providing for their own retirement benefits over belonging to a company sponsored plan. Find the 95% confidence interval for the proportion of all the workers in the plant who prefer their own retirement plans.
10. What are the different control charts for attributes ?

Turn over

11. A television serial producing company analysed the viewership of various channels and concluded that the viewership for a serial was 55%. A rating company conducted a survey of 600 people in metros and found that the viewership for the same serial was 40%. The manager of the company is confused and wants to know who is correct. Let the significance level be 0.05.
12. In a sample of 8 observations, the sum of squared deviations of items from the mean was 94.5. In other sample of 10 observations the value was found to be 101.7. test whether the difference is significant at 5% level.
13. Explain the use of ANOVA in business research. Differentiate between one way and two way ANOVA.
14. Suppose that 50% of the 60 plants in region I abide by the antipollution standards but only 40% of the 40 plants in region II do so. Is the percentage of plants abiding by the anti pollution standards significantly greater in region I as opposed to region II at the level of 5% significance?
15. Describe the various applications of t test.
16. Find the probability that the mean of a random sample of 25 elements from an normally distributed population with a mean 90 and standard deviation 60 is larger than 100.

(5 × 2 = 10)

Section C

Answer any three questions.

Each answer not to exceed 5 pages.

Each question carries 5 weight.

17. Describe sampling distribution and also explain the tests of significance for attributes.
18. An intelligence test on two groups of boys and girls give the following results

		Mean	S.D.	N
Girls	...	75	15	150
Boys	...	70	20	250

Is there a significant difference in the mean scores obtained by boys and girls? Test at 5% level of significance.

19. Construct a mean chart and a range chart using the following data relating to 12 batches of 1000 tyres, which has been tested 5 tyres at a time.

Batch	:	1	2	3	4	5	6	7	8	9	10	11	12
\bar{X}	:	50.5	49.7	50.0	50.7	50.7	50.6	49.8	51.1	50.2	50.4	50.6	50.7
R	:	1.1	1.6	1.8	0.1	0.9	2.1	0.3	0.8	2.3	1.3	2.0	2.1

20. A group of clinical physicians is performing test to determine the effectiveness of a new drug. At the 0.05 level of significance, determine whether the new drug is significantly more effective than the older drugs.

<i>Group</i>		<i>Proportion that Improved</i>	<i>Number of Patients</i>
Treatment	...	0.45	120
Control	...	0.36	150

21. Describe in what all ways quantitative techniques can be applied in the fields of business, industry and management in the modern world.
22. The number of heart attacks suffered by males and females of various age groups in a city is given below. Test at the 1% level of significance the hypothesis that age and sex are independent in the occurrence of heart attacks.

<i>Age Group</i>		<i>Male</i>	<i>Female</i>	<i>Total</i>
< 30	...	10	10	20
30 - 60	...	50	30	80
> 60	...	30	20	50
		90	60	150

(3 × 5 = 15)