G 18000111

M.Com. DEGREE (C.S.S.) EXAMINATION, FEBRUARY 2018

First Semester

Faculty of Commerce

QT 01 C05—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. Distinguish between Type-1 error and Type-2 error

2. Explain the properties of a standard normal curve.

3. What is F-test ? What are its assumptions ?

4. What do you meant by co-efficient of collignation ?

5. What is R-Chart ?

6. What are non-parametric tests ?

7. What is Sign test ?

8. What are the merits of Quantitative techniques ?

$(5 \times 1 = 5)$

Section B

Answer any **five** *questions.*
Each answer not to exceed **two pages**.
Each question carries 2 weight.

9. Explain the characteristics of Normal distribution.

10. Distinguish between sampling and non sampling errors.

11. What are the techniques of Statistical Quality Control ?

Turn over

12. . A random sample of 200 villages was taken from district A and average population per village was 485 with standard deviation 50. Another random sample of 250 villages from the same district gave an average population of 510 per village with standard deviation of 40.is the difference between the averages of the two samples statistically significant at 5% level of significance.

13. A car hire firm has two cars which it hires out day by day. The number of demands for a car on each day is distributed as a poisson variate with mean 1.5. Calculate the proportion of days on which (I) Neither car is used (II) Some demand is refused.

14. The average life of 26 electric bulbs were found to be 1200 hours with a standard deviation of 150 hours. Test whether these bulbs could be considered as a random sample from a normal population with mean 1300 hours.

15. A sample of 19 pairs of x and y value is selected from a population with $r = 0.8$.The sample correction co-efficient is found to be 0.75. Does the sample belong to the population ?

16. 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 in all ?

$(5 \times 2 = 10)$

Section C

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

17. A company produces belts, the number of defective belts found in the inspection of 25 lots of 50 each is given below :

2, 5, 4, 3, 7, 4, 2, 1, 2, 4, 2, 8, 4, 3, 2, 2, 0, 4, 4, 3, 2, 4, 1, 3, 6.

Construct an appropriate control chart.

18. Apply the technique of analysis of variance to the following data relating to yields of 4 varieties of wheat in 3 blocks :

	Blocks		
Varieties	1	2	3
I	10	9	8
II	7	7	6
III	8	5	4
IV	5	4	4

Carry out two way analysis of variance.

19. There are two samples first contains the observations-(54, 39, 70, 58, 47, 40, 74, 49, 74, 75, 61 and 79). The second contains (45, 41, 62, 53, 33, 45, 71, 42, 68, 73, 54 and 73)Apply Rank sum test to test at 5% level of significance of the hypothesis that they come from populations with the same mean.

20. From the adult population of four large cities, random samples were selected and the number of married and unmarried men were recorded :

Cities

	A	B	C	D	Total
Married	137	164	152	147	600
Single	32	57	56	35	180
Total	169	221	208	182	780

Is there significant variation among the cities in the tendency of men to marry.

21. Explain the application of Quantitative Techniques in Business, Industry and Management.

22. Explain the different types of Non-Parametric tests.

$(3 \times 5 = 15)$