D 93088 **(Pages : 3)** **Name.....**

Reg. No.....

FIRST SEMESTER M.Com. DEGREE EXAMINATION, DECEMBER 2015

(CUCSS)

MC IC 2—QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

(2015 Admissions)

Time : Three Hours Maximum : 36 Weightage

Part A

Answer **all** *questions.*
Each question carries 1 weightage.

1. Distinguish between correlation and regression.
2. What is meant by sampling distribution of sample means ? Explain its role in statistical inference.
3. What is ANOVA? For what purpose is it used ?
4. What are non-parametric tests ? What are its salient features ?
5. Explain the concept of 'degrees of freedom'.
6. What is a hypothesis ? Distinguish between null and alternative hypotheses.

(6 x 1 = 6 weightage)

Part B

Answer any **six** *questions.*
Each question carries 3 *weightage.*

7. List and explain the qualities of a good estimator.
8. Explain how sample size is determined using suitable examples.
9. What are the applications of Chi-square test ? What are its limitations ?
10. **In** a sample survey of **1000** housewives in a city, 23 % preferred a particular brand of pressure cooker. **Find 99** % confidence limits for the percentage of all housewives in the city preferring that brand of cooker.

Turn over

11. An inspection of 10 samples of size 400 each from 10 lots revealed the following number of defective units : 17, 15, 14, 26, 9, 4, 19, 12, 9 and 15. Calculate control limits for the number of defective units. Plot the control limits and the observations and state whether the process is under control or not.

12. The heights of six randomly chosen sailors are in inches : 63, 65, 68, 69, 71 and 72. Those of 10 randomly chosen soldiers are: 61, 62, 65, 66, 69, 69, 70,71, 72 and 73. Discuss in the light of these data whether sailors are on the average taller than soldiers.

13. In a sample of 500 people in a certain district, 280 are tea drinkers and the rest are coffee drinkers. Can we assume that both coffee and tea are equally popular in this district at 1 % level of significance ?

14. A random sample of 100 recorded deaths in a certain city during the past year showed an average life span of 71.8 years with a standard deviation of 8.9 years. Does this seem to indicate that the average life-span today is greater than 70 years ? Use a 0.05 level of significance.

(6 x 3 = 18 weightage)

Part C

Answer any two questions.
Each question carries 6 weightage.

15. A department store gives service to its salesmen which is followed by a test. It is considering whether it should terminate the services of any salesman who does not do well on the test. The following data gives the test scores and sales made by nine salesmen during a certain period :

Test scores	14	19	24	21	26	22	15	20	19
Sales ('000 Rs)	31	36	48	37	50	45	33	41	39

Calculate the co-efficient of correlation between the test scores and the sales. Does it indicate that termination of services of low test scores is justified ? If the firm wants a minimum sales volume of Rs. 3,000, what is the minimum test score that will ensure continuation of service ?

16 Random samples of four brands of cigarettes were tested for tar content. The following figures show the milligrams of tar found in the 16 cigarettes tested :

Brand A	Brand B	Brand C	Brand D
14	16	16	17
10	18	15	20
11	14	14	19
13	15	12	21

Use the Kruskal-Wallis test, at the 0.05 level of significance, to test whether there is a significant difference in tar content among the four brands of cigarettes.

17 What is 'Statistical Quality Control' ? Describe the various steps in the preparation of control charts for the mean and range. How will you interpret these charts ?

(2 x 6 = 12 weightage)