D 13314 (Pages : 2) Name.....

Reg. No.....

# FIRST SEMESTER M.Com. DEGREE EXAMINATION, DECEMBER 2016

(CUCSS)

MC 1C 02—QUANTITATIVE TECHNIQUES

(2010 Admissions)

Time : Three Hours Maximum : 36 Weightage

## Part A

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

1. What do you understand by classification of data ?
2. Explain the terms, class Intervals, class frequency and class limits.
3. Explain the uses of tabulation ?
4. What are the merits and demerits of a sampling survey ?
5. Explain the common errors in hypothesis testing.
6. Compare Mean, Median and Mode.

(6 × 1 = 6 weightage)

## Part B

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

7. Draw a manifold table for marks obtained by students based sex, marital status and residential status and days scholars.
8. Explain the relative frequency definition of probability. What are it's limitations.
9. Mean marks obtained by 100 students was found to be 40. Later on it was noticed that one value read as 83 instead of 53 .Find out the correct mean.
10. Weight of 50 students is given below. Find mode by inspection.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Weight | : | 47 | 49 | 50 | 51 | 53 | 55 |
| No. of students | : | 4 | 10 | 20 | 11 | 3 | 2 |

**Turn over**

11. Calculate the Median if Mode = 83 and Mean = 92

12. A machine depreciates by 40 % in the first year, by 25% in the second year and by 10% per annum for the next three years, each percentage being calculated on the diminishing value. What is the average percentage of depreciation for the entire period ?

13. If all the values of a series are increased by 5, what happens to the standards deviation ? If all values of a series are multiplied by 5 what happens to the standard deviation ?

14. Find out the combined mean and standard deviation from the following data :

| | Series A | Series B |
|---|---|---|
| No. of items | 50 | 250 |
| Mean | 25 | 30 |
| Standard deviation | 5 | 5.5 |

(6 × 3 = 18 weightage)

## Part C

*Answer any* **two** *questions.*
*Each question carries* 6 *weightage.*

15. Find the 14 Arithmetic means between 5 to 8 and show that their sum is 14 times the AM between 5 to 8.

16. Solve by Cramer's rule :

$$3x + 3y - z = 11$$
$$2x - y + 2z = 9$$
$$4x + 3y + 2z = 25.$$

17. In 1000 extensive sets of trials for an event of small probability, the frequency, of number of X success proved to be :

| X | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| F | 305 | 365 | 210 | 80 | 28 | 9 | 2 | 1 |

Assuming it to be a poisson distribution, calculate the expected frequencies.

(2 × 6 = 12 weightage)

D 93083 (Pages : 2) Name.....

Reg. No.....

# FIRST SEMESTER M.Com. DEGREE EXAMINATION, DECEMBER 2015

## (CUCSS)

## 1.2—QUANTITATIVE TECHNIQUES

## (2010—2014 Admissions)

Time : Three Hours Maximum : 36 Weightage

### Part A

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

1. State the concept of conditional probability.
2. Mention the parameters of the binomial, Poisson and normal distributions.
3. Write a short note on multistage and cluster sampling.
4. State any two assumptions of *t*-test.
5. What is meant by quality of a product ?
6. What techniques are used to solve decision-making problems under uncertainty ?

( 6 × 1 = 6 weightage)

### Part B

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

7. A candidate is selected for interview for three posts. For the first post there are three candidates, for the second there are 4 and for the third there are 2. What are chances of his getting at least one post ?
8. The mean life of bulbs is normally distributed with mean 120 days and standard deviation 20 days. If 1000 such bulbs are installed then find how many bulbs will fail in less than 90 days.
9. Write short note on F-distribution and a test based on this distribution.
10. 500 apples are taken at random from a large basket and 50 are found to be bad. Estimate the proportion of bad apples in the basket and assign limits within which the percentage of bad apples lies.
11. How does quality affect a supplier's economy ?
12. Briefly explain 'expected value of perfect information', with examples.

Turn over

13. Determine the optimal minimax strategies for each player in the following game.

| | | B | | | |
|---|---|---|---|---|---|
| | | $B_1$ | $B_2$ | $B_3$ | $B_4$ |
| A | $A_1$ | −5 | 2 | 0 | 7 |
| | $A_2$ | 5 | 6 | 4 | 8 |
| | $A_3$ | 4 | 0 | 2 | −3 |

14. Discuss the significance of statistical quality control. Also explain control chart for mean.

(6 × 3 = 18 weightage)

## Part C

*Answer any* **two** *questions.*
*Each question carries* 6 *weightage.*

15. Discuss the major features of Binomial and poisson Distribution. Under what conditions Binomial Distribution tends to poisson Distribution ?

16. The following data gives the number of defective items in 10 samples of size 100 each.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample No. | : | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| No of defectives | : | 2 | 1 | 0 | 5 | 1 | 3 | 3 | 0 | 0 | 2 |

Prepare a suitable control chart.

17. The following figure relatet to the number of units sold in five different areas by four salesman.

| Salesman | No of Units sold in Areas | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| A | 70 | 72 | 78 | 75 |
| B | 90 | 100 | 95 | 105 |
| C | 85 | 80 | 90 | 95 |
| D | 60 | 65 | 72 | 78 |

Is there a significant difference in the efficiency of these salesmen ?

( 2 × 6 = 12 weightage)