

2018**M. Com.****2nd Semester Examination****Basic Statistics (CBCS)****PAPER – COM – 204***Full Marks : 50**Time : 2 Hours*

Candidates are required to give their answers in their own words as far as practicable.

UNIT – I**1. Answer any two questions of the following: 5 X 2**

a) from the following information, calculate the median:

	Frequency
Less than 10	6
Less than 20	18
Less than 30	40
Less than 40	77
Less than 50	94
Less than 60	102
Less than 70	107

- b) What do you mean by Moment? Give the formula of Moment about ZERO, Moment about a constant and Mean.
- c) What do you mean by a cumulative frequency distribution? Point out its special advantages and uses.
- d) The arithmetic mean of two observations is 25 and their geometric mean is 15. Find Harmonic mean and the two observations.

(Turn over)

2. Answer any one questions of the following: 10 X 1

- a) Demand of TV in different towns is given in the following:
- | Town | A | B | C | D | E | F | G |
|--------------|----|----|----|----|----|----|----|
| Population | 11 | 14 | 14 | 17 | 17 | 21 | 25 |
| Demand of TV | 15 | 27 | 27 | 30 | 34 | 38 | 46 |
- Fit a linear regression of Y on X and estimate the demand of having of population i) 20, ii) 32
- b) While calculating the coefficient of correlation between two variables X and Y, the following results were obtained:
 $n = 25, \Sigma X = 125, \Sigma Y = 100, \Sigma X^2 = 650, \Sigma Y^2 = 460, \Sigma XY = 508$
 However, latter discovered at the time of checking that 2 pairs of observations (X, Y) were copied (6,14) and (8, 6), while the correct values were (8, 12) and (6, 8) respectively. Determine the correct value of the coefficient of correlation.

- b) The different machines are used for production of toys. On the basis of the output, set up one way ANOVA table and hence, test whether the machines are equally effective:

	Outputs			
Machine 1	10	5	11	10
Machine 2	9	7	5	6
Machine 3	20	16	10	14

[Given value of F at 5% level of significance with (2, 9) d.f. = 4.26]

(Internal Assessment :10 marks)

UNIT – II

3. Answer any two questions of the following: 5 X 2

- a) Distinguish between Population and Sample with illustration.
- b) Give the characteristics of normal probability distribution.
- c) State the limitations of the classical definition of probability.
- d) Three fair of coins are tossed once. Construct the sample space of the outcomes of the random experiment. Find the probability of:
 i) at least one head, ii) exact one tail.

4. Answer any one questions of the following: 10 X 1

- a) In a survey of students in four colleges from the different part of the district, 100 students were chosen at random and the results are:
- | College | A | B | C | D |
|-----------------------|----|----|----|----|
| Students with high IQ | 40 | 55 | 45 | 50 |
| Students with low IQ | 60 | 45 | 55 | 50 |
- Calculate the Chi-square value and test that the IQ of the students of all four colleges are same at 95% level of significance. [Given the value of Chi-square at 5% level with 3 d.f. is 7.815].