B. Com 2nd Semester (Honours) Examination, 2021

COMMERCE

Course Id: 21212   **Course Code: BCOMH/202C-4**

Course Title: Business Statistics

Full Marks: 40   **Time: 2 hours**

The figures in the margin indicate full marks

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

1. Answer **any five** questions: 2 x 5=10
    (a) Find the geometric mean of 1, 9, 81.
    (b) Find the mean deviation about median of the sample {2, 5, 9, 7, 3}.
    (c) Find the standard deviation of 10, 20 and 30.
    (d) The mean mark of 100 students was found to be 40. Later on it was discovered that a mark 53 was misread as 83. Find the corrected mean mark.
    (e) Find the regression equation of y on x from the following values: $\bar{x} = 10, \bar{y} = 15$ and $b_{yx} = 2.50$.
    (f) Find the median of the following numbers:
        7, 4, 3, 5, 6, 3, 3, 2, 4, 3, 4, 3, 3, 4, 4.
    (g) If $\sum_{i=1}^{n} x_i = 56, \sum_{i=1}^{n} y_i = 40, \sum_{i=1}^{n} x_i y_i = 364, n = 8, S_x = 4.06, S_y = 2.64,$ find r_{xy}.
    (h) Find the second moment of the data 6, 8, 10 about the value 2.

2. Answer **any four** questions: 5x4=20
    (a) Construct a frequency distribution table with class intervals 100-109, 110-119, 120-129 etc from the following 30 data (Tally marks must be shown)
        106, 122, 112, 125, 110, 131, 135, 130, 148, 154, 121, 132, 135, 138, 125, 112, 123, 140, 146, 114, 145, 138, 145, 152, 143, 135, 138, 132, 164, 152.
        Also draw histogram of this distribution on plane paper.   3+2
    (b) Ifthe first two moments of a distribution about the value 2 are 2 and 13, find the mean and variance of the distribution.   5
    (c) From the following data, find two regression equations: 5

x	1	2	3	4	5
Y	6	8	11	8	12

    (d) Find the median from the following table: 5

Class	0-20	20-40	40-60	60-80	80-100
frequency	8	15	6	7	14

(e) Prove that the correlation coefficient between two variables lies between -1 and 1.   5

(f) Find the standard deviation of first 100 natural numbers.   5

3. Answer **any one** question: 10x1=10
   (a) (i) Calculate the arithmetic mean from the following table:

Class interval	30-39	40-49	50-59	60-69	70-79
frequency	5	22	33	28	12

   (ii) Prove that the standard deviation of two variables is equal to the half of their absolute difference.   5+5
   (b) (i) Calculate the mode of the following distribution:

Age(years)	16-18	18-20	20-22	22-24	24-26
No. of students	45	75	38	22	20

   (ii) If the lines 4x+y=52 and x+y=32 be the regression lines of x on y and of y on x respectively, obtain the correlation coefficient.   5+5