(Honours)

Subject Name.: Economics

Course Code.: SH/ECO/401/C-8   Course ID.: 41611

Course Title: Statistical Methods for Economics-I

Full Marks: 40   **Time: 2 Hours**

1. **Answer any five of the following:**

                                                                           5x2=10
   a) Distinguish between primary dada and secondary data
   b) Define an Ogive.
   c) What is meant by the term standard deviation?
   d) Explain the term Skewness used in connection with the frequency distribution of a continuous variable.
   e) What is the difference between correlation and regression?
   f) Calculate coefficient of correlation when Covariance of X and Y is 488 and Variance of X is 824 and Variance of Y is 325.
   g) What do you mean by a time series? What are its different components?
   h) What is a "cost of living index number"?

2. **Answer any four of following:**   **4x5=20**
   a) The median and mode of the following wage distribution are known to be Rs. 33.5 and Rs.34 respectively. Three frequency values from the table are however missing. Find out the missing frequencies when sum of frequencies is 230.
      Wages(Rs.)   0-10,   10-20, 20-30, 30-40, 40-50, 50-60, 60-70
      No of persons   4,   16,   -------, --------, --------,   6,   4

   b) Define mode. From the following cumulative frequency distribution of marks obtained by 22 students calculate the median and mode:
      Marks   0-10   10-20 20-30 30-40 40-50   (1+4)
      No. of students   03   08   17   20   22
   c) What is meant by relative dispersion? Explain their uses.   (2+3)
   d) What is meant by moment of a distribution? Derive the expressions of central moment in terms of non-central moment's up to 4th order.   (2+3)
   e) The mean and SD of 20 items were found to be 10 and 2 respectively. At the time of checking it was found that one item 8, was incorrect. Calculate the mean and SD if (i) the wrong item is omitted and (ii) it is replaced by 12.   (5)

3. **Answer any one of the following:**   **1x10=10**
   a) What is the necessity to have a 'base year' while calculating price index. What is the difference between 'simple aggregative formula' and 'weighted aggregative formula' while constructing index number. From the following price and quantity data, compute Paasche's price index number for 2020 with 2016 as base year.

	Price (Rs. Per KG)		Quantity Sold (in KG)	
	2016	**2020**	**2016**	**2020**
Commodity A:	4	5	95	120
Commodity B:	60	70	118	130
Commodity C:	35	40	50	70

(3+2+5)

b) Why are there two regressions lines? For the variables x and y, the two regression equations were obtained as 6x+4y=41 and 8x+3y=43.

   (i) Identify the two regression lines.
   (ii) Find the means of x and y, the correlation coefficient and the ratio of two standard deviations.
   (iii) What happens to the value of the correlation coefficient when the two regression lines are perpendicular to each other?   (4+4+2)