Reg. No. : ....

Name : ....

Fourth Semester B.Com. LL.B. (Five Year Integrated) Degree Examination, April 2024

Paper III : BUSINESS STATISTICS

(2020 Admission Onwards)

Time : 3 Hours   Max. Marks : 80

I.   Answer any **five** of the following. Each question carries 2 marks.

1.   What is Simple Random Sampling?

2.   What are Chain Base index numbers?

3.   Distinguish between Seasonal and Cyclical Variation.

4.   What are Simple and Multiple regressions?

5.   What do you mean by Co efficient of Determination?

6.   What is a Frequency Distribution?

7.   Write a note on Cost of Living Index.

(5 × 2 = 10 Marks)

II. Answer any **four** of the following. Each question carries 4 marks.

1.   What are the different methods of measuring trend in time series?

2.   State any four uses of Index Number.

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3. What are the characteristics of a good average?

4. Briefly explain different types of classifications of data.

5. A student calculates the value of coefficient of correlation (r) as 0.7 when the number of items (n) is 25. Calculate Probable Error. Also find the limits within which population correlation coefficient may vary.

<div align="right">(4 × 4 = 16 Marks)</div>

III. Answer any **four** of the following. Each question carries **6** marks.

1. Define Correlation. Discuss different types of correlation.

2. Explain different methods of collecting primary data.

3. You are given the following data

	X	Y
Arithmetic Mean	36	85
Standard Deviation	11	8

Correlation coefficient between X and Y = 0.66

(a) Find the two regression lines   (b) Estimate the value of X when Y = 75.

4. Fit a straight-line trend to the following series by the method of least square. Also make an estimate of profit in 2022.

Year :	2014	2015	2016	2017	2018	2019	2020
Profit (in 000')	65	72	74	60	80	85	90

5. A computer while calculating correlation coefficient between two variables X and Y from 25 pairs of observations obtained the following results: $n = 25, \sum X = 125, \sum X^2 = 650, \sum Y = 100, \sum Y^2 = 460, \sum XY = 508$.
If was, however, later discovered at the time of checking that he had copied down two pairs as (X, Y) = (6,14). (8.6) while the correct values were (X, Y) = (8,12), (6,8).

Obtain the correct value of correlation co-efficient.

<div align="right">(4 × 6 = 24 Marks)</div>

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IV. Answer any **three** of the following. **Each** question carries **10** marks.

1. Calculate Spearman's coefficient of rank correlation for the following data

    X : 53 98 95 81 55 61 59 55

    Y : 47 25 32 37 32 40 32 45

2. Compute Laspeyer's, Marshall- Edgeworth. and Fisher's Index numbers from the following data

Items	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	50	2	60	3
B	40	3	40	5
C	100	1	120	1
D	20	4	25	4

3. From the following data, calculate Mean and Median.

Wages	No. of labourers
Above 0	650
Above 10	500
Above 20	425
Above 30	375
Above 40	300
Above 50	275
Above 60	250
Above 70	100

4. A panel of two judges A and B graded seven dramatic performances by independently awarding marks as follows.

Performances : 1 2 3 4 5 6 7

Marks by A : 46 43 44 40 43 47 45

Marks by B : 40 35 36 38 39 37 42

Formulate two regression equations. The eighth performance for which Judge B could not attend. was awarded 39 marks by Judge A. Using regression, estimate the marks that Judge B would have been awarded to the eighth performance if he has also been present.

$(3 \times 10 = 30$ Marks)

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