K26FY1614 Pages: 2 Reg No:.....
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Second Semester FYUGP Degree (Reg/Sup/Imp) Examination April 2026

KU2DSCSTA134 - QUANTITATIVE TECHNIQUES IN DATA ANALYSIS-I

2024 Admission onwards

Time : 2 hours Maximum Marks : 70

Section A

Answer any 6 questions. Each carry 3 marks.

1. Distinguish between correlation and regression

2. Define regression

3. What is a scatter diagram, and how is it used in statistical analysis?

4. Give the formula for Karl Pearson's correlation coefficient.

5. Without any calculation identify the coefficient of correlation between X and Y from the following data.

X	11	12	13	14	15
Y	15	14	13	12	11

6. calculate index number by simple aggregate method:

Commodity	1989		1998	
	Price	Quantity	Price	Quantity
A	15.3	15	22.7	12
B	20.2	5	27.4	4
C	4	10	7	8

7. Define the simple price relative's method of constructing an index number.

8. Given that $\sum p_1 q_1 = 250$, $\sum p_0 q_0 = 150$, Paasche's index number=150 and Dorbish and Bowley's index number = 145. Find Fisher's ideal index number.

Section B

Answer any 4 questions. Each carry 6 marks.

9. Explain the significance of the study of correlation.

10. Given the following pairs of values of the variables X and Y.

X	10	20	30	40	50	60	70	80
Y	32	20	24	36	40	28	48	44

(a)Make a scatter diagram.
(b)Is there any correlation between variables X and Y.

11. Prove that Karl Pearson's coefficient of correlation always lies between -1 and −1.

12. Compute the price index for the following by
(i) Simple aggregative method and
(ii) Average of price relative method
by using both arithmetic mean and geometric mean.

Commodity:	P	Q	R	S	T	U
Price in 2021(Rs):	20	30	10	25	40	50
Price in 2022(Rs):	25	30	15	35	45	55

13. Explain the weighted index numbers.

14. From the following data calculate:
(i) Price index using Laspeyres formula and
(ii) Quantity index using Dorbish-Bowleys formula

Commodity	Current year		Base year	
	Price	Quantity	Price	Quantity
A	20	200	360	12
B	4	36	64	16
C	14	238	575	23

Section C

Answer any 2 questions. Each carry 14 marks.

15. Discuss the advantages of using the least squares method over other trend measurement techniques.How does the least squares method help in forecasting future values in a time series? Provide examples.

16. Name two methods of measuring secular trend in time series.Explain it.

17. (a) Explain regression lines and give the equation for the 2 regreesion lines. Why there are 2 such lines? (b) Given 2 regression lines are 8x-10y+66=0 and 40x-18y=214. identify which line is y on x and find the value of correlation coefficient.