LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034



B.Com. DEGREE EXAMINATION – **COMMERCE**

SECOND SEMESTER - APRIL 2025



UBC 2301 - BUSINESS STATISTICS

Date: 05-05-2025	Dept. No.	Max. : 100 Marks
Time: 09:00 AM - 12:00 PM		

	SECTION A - K1 (CO1)
	Answer ALL the Questions $(10 \times 1 = 10)$
1.	Define the following:
a)	Skewness.
b)	Properties of correlation coefficient.
c)	Seasonal indices.
d)	Intercept & Slope.
e)	Optimal Solution.
2.	Fill in the blanks:
a)	Find the arithmetic mean for the following data: 12, 15, 10, 9, 11, 16, 14, 6
b)	Scattered diagram method is used in
c)	A time series is arranged in order.
d)	Multiple regression uses two or more variables to predict the outcome.
e)	Least cost method is otherwise called as
	SECTION A - K2 (CO1)
	Answer ALL the Questions $(10 \times 1 = 10)$
3.	Match the Following:
a)	Empirical relationship -(i) Cyclic and irregular.
b)	Coefficient of correlation -(ii) A basic feasible solution that contains less than m+n-1.
c)	Ratio to trend -(iii) Perfect goodness of fit.
d)	Error term -(iv) lies between – 1 & +1.
e)	Degenerated -(v) 3 Median – 2 Mean.
4.	True or False:
a)	The empirical formula gives the relationship between mean, median and mode.
b)	The formula used to find Rank correlation, $p = 1 - 6\sum d/N(N2 - N)$.
c)	
C)	Time series is nothing but statistical observation arranged in chronological order.
d)	Time series is nothing but statistical observation arranged in chronological order. Linear regression uses one independent variable. A feasible solution to a transportation problem is a set of negative allocation.

SECTION B - K3 (CO2)

Answer any TWO of the following in 100 words each.

 $(2 \times 10 = 20)$

5. Calculate Bowley's coefficient of skewness from the following data.

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
No. of	10	25	20	15	10	35	25	10
persons								

- 6. Explain the different types of correlation.
- 7. A sample of 12 fathers and their eldest sons gave the following data about their heights in inches.

Find the rank correlation coefficient.

Father	6	63	67	64	68	62	70	66	68	67	69	71
	5											
Son	6	66	68	65	69	66	68	65	71	67	68	70
	8											

8. Solve the following L.P. problem by graphical method.

Minimize Z = 5x1 + 4x2

Subject to constraints, $4x1 + x2 \ge 40$

$$2x 1 + 3x2 \ge 90$$

and x1, x
$$2 \ge 0$$
.

SECTION C – K4 (CO3)

Answer any TWO of the following in 100 words each.

 $(2 \times 10 = 20)$

9. You are given below the following information about advertising and sales.

	Adv. Exp (X) (in lakhs)	Sales (Y) (in lakhs)
Mean	10	90
S.D.	3	12

Correlation coefficient = 0.8

- 1. Obtain the two regression lines.
- 2. Find the likely sales when advertisement expenditure is Rs. 15 lakhs
- 3. What should be advertisement expenditure if the company wants to attain sales target of Rs.120 lakhs?
- 10. Write short notes on:

MAE

MSE

MAPE

R Square

		Year	199	5	1996	1997	199	8 199	99	2000	2001		
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ns	wer any	ONE of t	he follo	wing	in 250) words	S						(1 x
3.	Calcula	ate the mo	de from	the fo	llowin	ng data:							
	X	25		30		35	4	40		45	50	55	
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