LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

SECOND SEMESTER – **APRIL 2025**

UST2AR01 – BUSINESS STATISTICS

Date: 05-05-2025 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 PM

SECTION A - K1 & K2 (CO1)

Q.No	Levels	**Answer ALL the Questions**	**(10 x 2 = 20)**
1	K1	Define Statistics.	
2		What is the median of the data given below? 14,18,19,10,12,13,18,15,18	
3		What are the methods of determining correlation?	
4		Write any two applications of regression.	
5		Define Kurtosis.	
6	K2	Write the formula of the evaluation measure MAPE.	
7		State the methods to study Secular trend.	
8		Write the normal equation of fitting of straight line equation.	
9		Define LPP.	
10		State the methods to find feasible solution in Transportation problem.	

SECTION B – K3 & K4 (CO2)

		Answer ALL the Questions	**(4 x 10 = 40)**
11	K3	Calculate mean, median and mode for the following frequency distribution.	

Wages(Rs.)	0-5	5-10	10-15	15-20	20-25	25-30
No. of Workers	20	25	35	28	24	19

[OR]

12 Calculate Bowley's coefficient of skewness:

No. of children per family	0	1	2	3	4	5	6
No. of families	7	10	16	25	18	11	8

13 Find the coefficient of correlation between age of cars and annual maintenance cost

Age of cars(years)	2	4	6	7	8	10	12
Annual Maintenance	16	15	18	19	17	21	20

[OR]

14 Ten Competitors in a beauty contest were ranked by the three judges X,Y and Z in the following order:

Rank by X	1	6	5	10	3	2	4	9	7	8
Rank by Y	3	5	8	4	7	10	2	1	6	9
Rank by Z	6	4	9	8	1	2	3	10	5	7

Using rank correlation method, discuss which pair of judges has the nearest approach to common tastes in beauty.

15 Fit a straight line by the method of least squares.

Year	2016	2017	2018	2019	2020	2021	2022	2023
value	25	32	38	40	39	44	46	50

[OR]

16 Write the procedure of finding secular trend by semi-average method with an example.

17 K4 Write the procedure of solving a LPP using graphical method.

[OR]

18 A construction company has a project that consists of several activities. The table below provides the **activities, their immediate predecessors, and the time required (in days) to complete each activity**. Draw the network diagram and determine the **Critical Path.**

Activity	Immediate Predecessor	Duration(Days)
A	-	4
B	A	5
C	A	6
D	B	7
E	C	8
F	C	3
G	D,E	6
H	F,G	4

SECTION C – K5 & K6 (CO3)

Answer ALL the Questions **(2 x 20 = 40)**

19 K5 Goals scored by teams A and B in a football season are as follows:

Number of Goals scored in a match	Number of matches	
	A	B
0	27	17
1	9	9
2	8	6
3	5	5
4	4	3

Which team can be considered as a more consistent team?

[OR]

20 (a) Find the two regression equations from the following data:

X	57	58	59	59	60	61	62	64
Y	77	78	75	78	82	82	79	81

Estimate the value of Y when the value of X is 65.

21 K6 Explain the components of Time series with example**.**

[OR]

22 A company has **4 warehouses** that supply **4 retail stores**. Determine the optimal transportation plan that minimizes the total transportation cost.

Warehouse/ Stores	S1	S2	S3	S4	Supply
W1	19	30	50	10	7
W2	70	30	40	60	10
W3	40	8	70	20	18
W4	20	60	80	40	15
Demand	5	8	7	30	50

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