LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **STATISTICS**

FIRST SEMESTER – **APRIL 2023**

UST 1501 – STATISTICAL METHODS

Date: 06-05-2023   Dept. No.   Max. : 100 Marks
Time: 01:00 PM - 04:00 PM

	SECTION A		
Answer ALL the Questions			
1.	**Answer the following questions**		**(5 x 1 = 5)**
a)	Give any two merits and demerits of geometric mean.	K1	CO1
b)	Explain Tabulation.	K1	CO1
c)	What is linear and non-linear curve?	K1	CO1
d)	Give any two properties of Regression coefficient.	K1	CO1
e)	What is Coefficient of Colligation?	K1	CO1
2.	**Fill in the blanks**		**(5 x 1 = 5)**
a)	_____is used in a mailed enquiry method.	K1	CO1
b)	The relation between standard deviation and variance_____.	K1	CO1
c)	The sum of deviations of the actual values of Y i.e.,$\sum(Y - Y_e)$=_____.	K1	CO1
d)	The regression equation of X on Y is _____.	K1	CO1
e)	Coefficient of quartile deviation is given by the formula_____.	K1	CO1
3.	**Match the following**		**(5 x 1 = 5)**
a)	Nominal - mesokurtic	K2	CO1
b)	Correlation - independent	K2	CO1
c)	Graphical method - Categorized	K2	CO1
d)	β_2=3 - Frequency curve	K2	CO1
e)	(AB)=$\frac{(A)X(B)}{N}$ - relationship	K2	CO1
4.	**True or False**		**(5 x 1 = 5)**
a)	Rectangles, Circles and Pie-diagrams are not two dimensional diagrams.	K2	CO1
b)	Coefficient of variation=$\frac{S.D}{mean}$X100	K2	CO1
c)	Linear relationship between two variables is regression.	K2	CO1
d)	'ρ' is the rank correlation coefficient.	K2	CO1
e)	Measures of association usually deal with attributes.	K2	CO1

SECTION B

Answer any TWO of the following questions (2 x 10 = 20)

5.	Draw Histogram and frequency curve.						K3	CO2

C.I	0-5	5-10	10-15	15-20	20-25	25-30
F	2	7	18	10	8	5

6.	Calculate Harmonic Mean.	K3	CO2

x	10	20	25	40	50
f	20	30	50	15	5

7.	(i) Explain in detail about Exponential and Growth curves. (7+3)	K3	CO2
	(ii) What is Independent of attributes?		

8.	Find Rank Correlation coefficient.	K3	CO2

X	52	63	45	36	72	65	47	25
Y	62	53	51	25	79	43	60	33

SECTION C

Answer any TWO of the following questions (2 x 10 = 20)

9.	(a) Differentiate Classification and Tabulation. (5+5)	K4	CO3
	(b) Give the difference between Diagrammatic and Graphical representation of data.		

10.	Draw suitable bar diagram.	K4	CO3

Year	Production in areas		
	Ragi	Barley	Maize
2001	87	65	72
2002	90	71	75
2003	95	80	79

11.	Calculate Regression equations on X on Y and Y on X from the following data and estimate X when Y=26.	K4	CO3

X	10	12	13	17	18	20	24	30
Y	5	6	7	9	13	15	20	21

12.	(i) Explain in detail about Association of attributes. (5+5)	K4	CO3
	(ii) Give the merits and demerits of Mean and Median.		

SECTION D

Answer any ONE of the following question (1 x 20 = 20)

| 13. | Find the curve of best fit $y=ae^{bx}$ to the following data using the method of least squares: | | | | | K5 | CO4 |

x	1	5	7	9	12
y	10	15	12	15	21

| 14. | (i)Find Standard deviation and its coefficient. (10+10) | K5 | CO4 |

227, 235, 255, 269, 292, 299, 312, 321, 333, 348

(ii)Find quartile deviation and its coefficient.

1490, 692, 777, 335, 582, 488, 753, 384, 407, 672, 522.

SECTION E

Answer any ONE of the following question (1 x 20 = 20)

| 15. | (i) Find Median. (10+10) | K6 | CO5 |

I.Q	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No.of students	2	5	8	10	7	10	3

(ii)Calculate Mode by grouping table method.

x	25	30	35	40	45	50	55
f	7	11	17	15	14	10	11

| 16. | (i) Explain order of classes and class frequencies in detail. (5+5+10) | K6 | CO5 |

(ii)From the following data find out the missing frequencies: (AB)=100, (A)=300, (N)=1000, (B)=600.

(iii)In a group of 800 students, the number of married is 320. But of 240 students who failed, 96 belonged to the married group. Find out whether the attributes marriage and failure are independent.

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