



LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

FIRST SEMESTER – APRIL 2025

UST1MC01 – STATISTICAL METHODS



Date: 23-04-2025

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A - K1 & K2 (CO1)

Q.No	Levels	Answer ALL the Questions (10 x 2 = 20)
1	K1	Define Classification.
2		What do you mean by Tabulation?
3		What are the various measures of central tendency?
4		Find the Range and its coefficient of range for the data : 13,25,36,22,18,45,21,26,30,22
5		What is meant by Skewness?
6	K2	Calculate the Inter-Quartile Range (IQR) of the numbers 8, 10, 11, 12, 14.
7		What are the properties of the coefficient of correlation?
8		Calculate the probable error assuming the correlation coefficient of 0.9 from a sample of 25 pairs of items.
9		Define consistency of data.
10		What do you understand by 'Association of Attributes'?

SECTION B – K3 & K4 (CO2)

		Answer ALL the Questions	(4 x 10 = 40)																		
11	K3	Construct the methods of collecting primary and secondary data.																			
		[OR]																			
12		(i). Distinguish between classification and tabulation.	(5)																		
		(ii). Represent the following data by a sub-divided bar diagram	(5)																		
		<table><tr><td>Commodities (in Rs)</td><td>A</td><td>B</td></tr><tr><td>Price per unit</td><td>3</td><td>2</td></tr><tr><td>Quantity sold</td><td>75</td><td>100</td></tr><tr><td>Value of raw material</td><td>175</td><td>150</td></tr><tr><td>Other production expenses</td><td>30</td><td>25</td></tr><tr><td>Profits</td><td>20</td><td>25</td></tr></table>	Commodities (in Rs)	A	B	Price per unit	3	2	Quantity sold	75	100	Value of raw material	175	150	Other production expenses	30	25	Profits	20	25	
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Value of raw material	175	150																			
Other production expenses	30	25																			
Profits	20	25																			
13		Calculate the Geometric Mean and Harmonic Mean from the following data:																			
		<table><tr><td>x</td><td>10</td><td>15</td><td>20</td><td>25</td><td>40</td><td>72</td></tr><tr><td>f</td><td>1</td><td>3</td><td>4</td><td>10</td><td>5</td><td>2</td></tr></table>	x	10	15	20	25	40	72	f	1	3	4	10	5	2					
x	10	15	20	25	40	72															
f	1	3	4	10	5	2															
		[OR]																			
14		Calculate the Quartile Deviation and its Coefficient of Quartile Deviation from the following data:																			
		<table><tr><td>Weekly Wages</td><td>100</td><td>200</td><td>400</td><td>500</td><td>600</td></tr><tr><td>No. of Weeks</td><td>5</td><td>8</td><td>21</td><td>12</td><td>6</td></tr></table>	Weekly Wages	100	200	400	500	600	No. of Weeks	5	8	21	12	6							
Weekly Wages	100	200	400	500	600																
No. of Weeks	5	8	21	12	6																

15	K4	Explain Karl Pearson's coefficient of Skewness. What is the difference between a relative measure and the absolute measures of Skewness?																				
16		[OR] Calculate the first four moments of the following distribution about the mean. <table><tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>f</td><td>1</td><td>8</td><td>28</td><td>56</td><td>70</td><td>56</td><td>28</td><td>8</td><td>1</td></tr></table>	x	0	1	2	3	4	5	6	7	8	f	1	8	28	56	70	56	28	8	1
x		0	1	2	3	4	5	6	7	8												
f	1	8	28	56	70	56	28	8	1													
17	Marks obtained by 8 students in Statistics(X) & Mathematics (Y) are given below. Compute rank correlation.																					
18		<table><tr><td>X</td><td>15</td><td>20</td><td>28</td><td>12</td><td>40</td><td>60</td><td>20</td><td>80</td></tr><tr><td>Y</td><td>40</td><td>30</td><td>50</td><td>30</td><td>20</td><td>10</td><td>30</td><td>60</td></tr></table> [OR]	X	15	20	28	12	40	60	20	80	Y	40	30	50	30	20	10	30	60		
	X	15	20	28	12	40	60	20	80													
	Y	40	30	50	30	20	10	30	60													
	Examine whether A and B are independent, positively associated or negatively associated in the following data: N= 1000, (A) =470, (B) = 620 and (AB) =320.																					

SECTION C – K5 & K6 (CO3)

	Answer ALL the Questions					(2 x 20 = 40)																										
19	K5	(i) Describe the various methods of graphical representation of statistical data. (8)																														
		(ii) Calculate the Mean, Median & Mode from the following data (12)																														
		<table><tr><td>Class Interval</td><td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td></tr><tr><td>Frequency</td><td>8</td><td>12</td><td>30</td><td>20</td><td>10</td></tr></table>										Class Interval	0-20	20-40	40-60	60-80	80-100	Frequency	8	12	30	20	10									
Class Interval	0-20	20-40	40-60	60-80	80-100																											
Frequency	8	12	30	20	10																											
20		[OR] The marks in Business Mathematics of two sections of students of a college are given below. Calculate Standard deviation and coefficient of variation. Also, Find in which section the marks are more variable. <table><tr><td>Marks</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td><td>60-70</td></tr><tr><td>No. of students in Sec. A</td><td>5</td><td>13</td><td>24</td><td>5</td><td>3</td></tr><tr><td>No. of students in Sec. B</td><td>7</td><td>14</td><td>25</td><td>12</td><td>2</td></tr></table>										Marks	20-30	30-40	40-50	50-60	60-70	No. of students in Sec. A	5	13	24	5	3	No. of students in Sec. B	7	14	25	12	2			
Marks	20-30	30-40	40-50	50-60	60-70																											
No. of students in Sec. A	5	13	24	5	3																											
No. of students in Sec. B	7	14	25	12	2																											
21	K6	(i) Explain the different types of correlation with examples. (10)																														
		(ii) Calculate the Karl Pearson's Coefficient of correlation from the following data (10)																														
		<table><tr><td>X</td><td>10</td><td>12</td><td>18</td><td>8</td><td>13</td><td>20</td><td>22</td><td>15</td><td>5</td><td>17</td></tr><tr><td>Y</td><td>88</td><td>90</td><td>94</td><td>86</td><td>87</td><td>92</td><td>96</td><td>94</td><td>88</td><td>85</td></tr></table>										X	10	12	18	8	13	20	22	15	5	17	Y	88	90	94	86	87	92	96	94	88
X	10	12	18	8	13	20	22	15	5	17																						
Y	88	90	94	86	87	92	96	94	88	85																						
22		[OR] (i) Explain Yule's coefficient of association. (6) (ii) Write down the conditions under which two attributes A and B are (i) independent (ii) positively associated (iii) negatively associated. (6) (iii) Calculate Yule's coefficient of association for given values. N = 250, (AB) = 70, (A) = 80 and (B) = 100. (8)																														

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