

	ENGINEERING MATHEMATICS IV (AAS0402) UNIT-I	SESSION: 2021-22
		CLASS/SEM: (CSE+ECE)- IV(EVEN)
Assignment Given Date: 10/03/22	Maximum Points: 100	
Assignment Submission Date: 22/03/22	Weightage in University Exam: 34 Marks	
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Note: Write solution of each question in clear handwriting.

Q. N.	Question Statement	Pts	CO	BLOOM'S KNOWLEDGE LEVEL																				
1	<p>An incomplete distribution of families according to their expenditure per week is given below. The median and mode for the distribution is ₹ 25 and ₹ 24 respectively. Calculate the missing frequencies.</p> <table><tr><td>Expenditure</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td></tr><tr><td>No. of families</td><td>14</td><td>?</td><td>27</td><td>?</td><td>15</td></tr></table>	Expenditure	0-10	10-20	20-30	30-40	40-50	No. of families	14	?	27	?	15	5	1	K ₅								
Expenditure	0-10	10-20	20-30	30-40	40-50																			
No. of families	14	?	27	?	15																			
2	<p>Calculate mode of the following distribution:</p> <table><tr><td>Wages</td><td>50-70</td><td>70-90</td><td>90-110</td><td>110-130</td><td>130-150</td><td>150-170</td><td>170-190</td><td>190-210</td><td>210-230</td></tr><tr><td>No. of workers</td><td>4</td><td>44</td><td>38</td><td>28</td><td>6</td><td>8</td><td>12</td><td>2</td><td>2</td></tr></table>	Wages	50-70	70-90	90-110	110-130	130-150	150-170	170-190	190-210	210-230	No. of workers	4	44	38	28	6	8	12	2	2	5	1	K ₅
Wages	50-70	70-90	90-110	110-130	130-150	150-170	170-190	190-210	210-230															
No. of workers	4	44	38	28	6	8	12	2	2															
3	<p>The first four moments of a distribution about 2 are 1,2.5,5.5 and 16 resp.Calculate the four moments about mean and about the origin.</p>	5	1	K ₅																				
4	<p>Find the moment coeff. of Skewness and kurtosis of the following data.</p> <p>Class- interval: 0-10 10-20 20-30 30-40 40-50</p> <p>Frequency: 10 20 40 20 10</p>	10	1	K ₃ , K ₅																				
5	<p>Calculate the correlation coefficient between X and Y from the following data-</p> <p>X: 60 34 40 50 45 41 22 43</p> <p>Y: 75 32 34 40 45 33 12 30</p>	10	1	K ₃ , K ₅																				

6	Calculate the rank correlation coefficient between X and Y from the following data- X: 15 20 27 13 45 60 20 75 Y: 50 30 55 30 25 10 30 70	10	1	K ₅																					
7	If the coefficient of correlation between two variables x and y is 0.5 and the acute angle between their lines of regression is $\tan^{-1}(3/5)$. show that $\sigma_x = \sigma_y/2$.	10	1	K ₂ , K ₅																					
8	For two random variables, x and y with same mean, the two regression equations are $y = ax + b$ and $x = \alpha + \beta y$. Show that $\frac{b}{\beta} = \frac{1-\alpha}{1-\beta}$. Also find Common mean.	10	1	K ₅																					
9	By method of least square fit a curve $y = ax^b$ to the following data: x : 1 2 3 4 5 y : 7.1 27.8 62.1 110 161	10	1	K ₅																					
10	Two lines of regression are given by $3x + 2y - 26 = 0$ and $6x + y - 31 = 0$ and $var(x)=16$. Calculate- (i) the mean of x and y (ii) variance of y (iii) the correlation coefficient.	10	1	K ₅																					
11	Find the multiple linear regressions of x on y and z from the data relating to three variables: <table border="1"><tr><td>x</td><td>4</td><td>6</td><td>7</td><td>9</td><td>13</td><td>15</td></tr><tr><td>y</td><td>15</td><td>12</td><td>8</td><td>6</td><td>4</td><td>3</td></tr><tr><td>z</td><td>30</td><td>24</td><td>20</td><td>14</td><td>10</td><td>4</td></tr></table>	x	4	6	7	9	13	15	y	15	12	8	6	4	3	z	30	24	20	14	10	4	10	1	K ₄ , K ₅
x	4	6	7	9	13	15																			
y	15	12	8	6	4	3																			
z	30	24	20	14	10	4																			

Answer:

- 25,24
- 97.5
- 0,1.5,0.6 and 3,10.5,40.5,168
- 0 and 2.5(platykurtic)
- 0.9158
- 0
- Common mean: $\frac{b-\beta}{a-\alpha}$
- $y = 7.173x^{1.952}$
- $\bar{x} = 4, \bar{y} = 7, r = -0.5$
- $x = 16.413 - 0.00536y - 0.4335z$