



SOMAIYA
VIDYAVIHAR UNIVERSITY

Semester: January 2023 – May 2023		
Maximum Marks: 30	Examination: In-Semester Examination	Duration : 1 Hr 15min
Programme code: 01	Class: SY	Semester: IV
Programme: B. Tech Computer Engineering		(SVU 2020)
Name of the Constituent College: K. J. Somaiya College of Engineering	Name of the department: COMP	
Course Code:116U01C401	Name of the Course:PSOT	

Question No.		Max. Marks	CO Mapped	BT Level
Q1	Solve Any Two of the following	12	CO2	3 APP
(a)	Obtain the equation of the line of regression of y on x from the following data and estimate y for x = 73. <div style="display: flex; justify-content: space-around;"> x : 70 72 74 76 78 80 6-24 q2 </div> <div style="display: flex; justify-content: space-around;"> y : 163 170 179 188 196 220 </div>			
(b)	Calculate the coefficient of correlation between X and Y for the data below. <div style="display: flex; justify-content: space-around;"> X : 2, 4, 5, 6, 8, 11. 5-21 </div> <div style="display: flex; justify-content: space-around;"> Y : 18, 12, 10, 8, 7, 5. </div>			
(c)	Compute Spearman's rank correlation coefficient from the following data. <div style="display: flex; justify-content: space-around;"> X : 18, 20, 34, 52, 20 </div> <div style="display: flex; justify-content: space-around;"> Y : 39, 23, 39, 18, 46. </div>			
Q2	Solve Any Three of the following	18	CO1	3 APP
(a)	Fit a Poisson distribution to the following data. <div style="display: flex; justify-content: space-around;"> X: 0 1 2 3 4 Total </div> <div style="display: flex; justify-content: space-around;"> f: 122 60 15 2 1 200 </div>			
(b)	If X is a normal variate with mean 25 and standard deviation 5, find the value (i) of $X = x_1$, such that $P(X \geq x_1) = 0.32$, (ii) of $X = x_2$, such that $P(X \leq x_2) = 0.73$			
(c)	If a random variable X has the exponential distribution with mean $\mu = \frac{1}{\lambda} = \frac{1}{2}$ calculate the probabilities that (i) X will lie between 1 and 3 (ii) X is greater than 0.5 (iii) X is at most 4			
(d)	An irregular six faced die is thrown. The probability that in 10 throws it will give five even numbers is twice as likely that it will give four even numbers. How many times in 10,000 sets of 10 throws, would you expect to give no even number ?			

(e)	<p>The probability of X, Y and Z becoming managers are $\frac{4}{9}, \frac{2}{9}, \frac{1}{3}$ respectively. The probability that the bonus scheme will be introduced if X, Y, and Z becomes managers are $\frac{3}{10}, \frac{1}{2}$, and $\frac{4}{5}$ respectively.</p> <p>(i) What is the probability that bonus scheme will be introduced?</p> <p>(ii) If the bonus scheme has been introduced, what is the probability that the manager appointed was X.</p>			
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