

AIML

QUESTION BANK

Course Title : COMPUTER ORIENTED STATISTICAL METHODS

Course Code : 23MA303

Regulation : NR23

Course Objectives: To learn The theory of Probability, and probability distributions of single and multiple random variables• The sampling theory and testing of hypothesis and making statistical inferences•

Course outcomes: After learning the contents of this paper the student must be able to

1. Apply the concepts of probability and distributions to some case studies.
2. Distinguish between discrete and continuous probability distributions.
3. Formulate and solve problems involving random variables and apply statistical methods for analyzing experimental data.
4. Apply the concept of estimation and testing of hypothesis to case studies.
5. Estimate the correlation and regression values for the given data.

UNIT-I

PROBABILITY, RANDOM VARIABLES AND PROBABILITY DISTRIBUTIONS

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	Define sample space.	L1	CO1	PO1
2	Define pairwise independent events.	L1	CO1	PO2
3	Define conditional probability.	L3	CO1	PO1
4	State addition theorem for two events.	L3	CO1	PO2
5	Write mean formula for continuous variable.	L1	CO1	PO2
6	What is the probability that a card drawn at random from the pack of playing cards may be either a king or queen.	L3	CO1	PO1
7	Given that $f(x) = \frac{k}{2^x}$, is a probability distribution for a random variable X that can take values $x=0,1,2,3,4$. Find k.	L3	CO1	PO1
8	Write the properties of probability density function $f(x)$.	L1	CO1	PO1
9	What is the probability for a leap year to have 52 Mondays and 53 Sundays?	L2,L3	CO1	PO2
10	In a single throw with two dice find the probability of throwing a sum 8.	L3	CO1	PO2
Part – B (Long Answer Questions)				
11	a) State and prove Bayes theorem.	L1	CO1	P01
	b) Three machines A, B, C produce 40%,30%,30% of the total number of items of factory. The percentages of defective items of these machines are 4%,2%,3%. If an item is selected at random, which is found to be defective. What is the probability that it is from 1) Machine A ii. Machine B iii. Machine C.	L1,L3	CO1	P02
12	a) A sample of 4 items is selected at random from a box containing 12 items of which 5 are defective. Find the expected number E of defective items.	L3,L4	CO1	PO1

	b)	Box A contains 5 red and 3 white marbles and box B contains 2 red and 6 white marbles. If a marble is drawn from each box, what is the probability that they are both of same colour.	L2,L4	CO1	PO2																
13		A continuous random variable has the probability density function $f(x) = \begin{cases} kxe^{-\lambda x}, & \text{for } x \geq 0, \lambda > 0 \\ 0, & \text{otherwise} \end{cases}$ Determine i. K ii. Mean iii. variance	L3,L4	CO1	PO1																
14	a)	In a certain town 40% have brown hair, 25% have brown eyes and 15% have both brown hair and brown eyes, a person is selected at random from the town. i. If he has brown hair, what is the probability that he has brown eyes also? ii. If he has brown eyes, determine the probability that he does not have brown hair?	L3,L4	CO1	PO2																
	b)	Three students A ,B, and C are in a running race. A and B have the same probability of winning and each is twice as likely to win as C. find the probability that B or C wins.	L3,L4	CO1	PO2																
15	a)	Two aeroplane's bomb a target in succession. The probability of each correctly scoring a hit is 0.3 and 0.2 respectively. The second will bomb only if the first misses the target. Find the probability that i. Target is hit ii. Both fails to score hits	L2,L4	CO1	PO1																
	b)	Suppose a continuous random variable X has the probability density $f(x) = k(1 - x^2)$ for $0 < x < 1$ and $f(x)=0$ otherwise. Find i. k ii. Mean	L2,L4,L5	CO1	PO2																
16		A random variable X has the following probability function <table border="1"><tr><td>X</td><td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>P(X)</td><td>k</td><td>0.1</td><td>k</td><td>0.2</td><td>2k</td><td>0.4</td><td>2k</td></tr></table> Find i. k ii. Mean	X	-3	-2	-1	0	1	2	3	P(X)	k	0.1	k	0.2	2k	0.4	2k	L3,L5	C01	PO1
X	-3	-2	-1	0	1	2	3														
P(X)	k	0.1	k	0.2	2k	0.4	2k														

		iii. Variance iv. $P(X \geq 1)$ v. $P(-2 < X < 2)$			
--	--	--	--	--	--

UNIT-II

MATHEMATICAL EXPECTATIONS AND DISCRETE PROBABILITY DISTRIBUTIONS

S. No	Questions	BT	CO	PO										
Part – A (Short Answer Questions)														
1	Define expectation of a random variable X	L1	CO2	PO1										
2	Define variance of a random variable X for discrete and continuous cases.	L1	CO2	PO1										
3	Let X be a random variable with density function $f(x) = \begin{cases} \frac{x^3}{3}, & -1 < x < 2 \\ 0, & \text{else where} \end{cases}$ <p>Find the expected value of f(x).</p>	L3	CO2	PO2										
4	Let the random variable X represent the number of defective parts for a machine when 3 parts are sampled from a production line and tested. The following is the probability distribution of X. <table border="1" style="margin: 10px auto;"> <tr> <td>X</td><td>0</td><td>1</td><td>2</td><td>3</td></tr> <tr> <td>F(x)</td><td>0.51</td><td>0.38</td><td>0.10</td><td>0.01</td></tr> </table> <p>Calculate E(X)</p>	X	0	1	2	3	F(x)	0.51	0.38	0.10	0.01	L3	CO2	PO2
X	0	1	2	3										
F(x)	0.51	0.38	0.10	0.01										
5	20% of item produced from a factory are defective. Find the probability that in a sample of 5 chosen at random $P(1 < x < 4)$.	L3	CO2	PO2										
6	If the probability of a defective bolt is 0.2 find the mean and variances of the number of successes.	L3	CO2	PO2										
7	Define geometric distribution.	L1	CO2	PO1										
8	If a random variable has a Poisson distribution such that $P(1) = P(2)$, find mean of the distribution.	L3	CO2	PO2										
9	Using Poisson distribution, find the probability that the ace of spades will be drawn from a pack of well shuffled cards at least once in 104 consecutive trials.	L3	CO2	PO2										
10	In 256 set of 12 tosses of a coin, in how many cases one can expect 8 heads and 4 tails.	L3	CO2	PO2										
Part – B (Long Answer Questions)														

11		Seven coins are tossed and the number of heads are noted. The experiment is repeated 128 times and the following distribution is obtained. Fit a Binomial Distribution to the following data assuming the coin is unbiased <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></tr><tr><td>f</td><td>7</td><td>6</td><td>19</td><td>35</td><td>30</td><td>23</td><td>7</td><td>1</td></tr></table>	x	0	1	2	3	4	5	6	7	f	7	6	19	35	30	23	7	1	L3,L5	CO2	PO3
x	0	1	2	3	4	5	6	7															
f	7	6	19	35	30	23	7	1															
12	a)	Using recurrence formula find the probabilities when $X=0,1,2,3,4$ and 5, if the mean of Poisson distribution is 3.	L3,L5	CO2	PO3																		
	b)	If the probability that an individual suffers a bad reaction from a certain injection is 0.001, determine the probability that out of 2000 individuals i. Exactly 3 ii. More than 2 individuals iii. None iv. More than one individual suffers bad reaction	L3	CO2	PO2																		
13	a)	A die is tossed until 6 appears. Find the probability that it must be cast more than 5 times.	L1	CO2	PO1																		
	b)	A lot containing 7 components is sampled by a quality inspector. The lot contains 4 good components and 3 defective components. A sample of 3 items is taken by the inspector. Find the expected values of the number of good components in the sample.	L3	CO2	PO2																		
14		Out of 800 families with 5 children each, how many would you expect to have a. 3boys b. 5girls c. At least one boy d. Mean e. Variance	L3,L4,L5	CO2	PO3																		
15	a)	Derive variance of Poisson distribution	L1	CO2	PO1																		
	b)	A die is tossed until 6 appears. Find the probability that it must be cast more than 5 times.	L2	CO2	PO2																		
16	a)	If a Poisson Distribution is such that $\frac{3}{2}P(X = 1) = P(X = 3)$. Find i. $P(X \geq 1)$ ii. $P(X \leq 3)$	L2	CO2	PO2																		
	b)	Calculate the variance of $g(X)=2X + 3$, where X is a random variable with the following probability	L3	CO2	PO2																		

	distribution													
	<table border="1"> <tr> <td>x</td><td>0</td><td>1</td><td>2</td><td>3</td></tr> <tr> <td>F(x)</td><td>1/4</td><td>1/8</td><td>1/2</td><td>1/8</td></tr> </table>	x	0	1	2	3	F(x)	1/4	1/8	1/2	1/8			
x	0	1	2	3										
F(x)	1/4	1/8	1/2	1/8										

UNIT-III

CONTINUOUS DISTRIBUTIONS AND SAMPLING AND FUNDAMENTAL SAMPLING DISTRIBUTIONS

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	State the conditions under which Normal distribution is a limiting case of Binomial.	L1	CO3	PO1
2	If X is a Normal variate with mean 30 and standard deviation 5. find $P(26 \leq X \leq 40)$.	L2	CO3	PO2
3	Define Normal distribution.	L1	CO3	PO1
4	Define statistic and parameter.	L1	CO3	PO1
5	Find the value of the finite population correction factor for $n=10$ and $N=100$.	L3	CO3	PO2
6	How many different samples of size 2 can be chosen from a finite population of size 25.	L3	CO3	PO2
7	Write the test statistic for F-distribution	L1	CO3	PO1
8	The variance of a population is 2. The size of the sample collected from the population is 169. What is the standard error of mean.	L3	CO3	PO2
9	Write test statistic for t- distribution for difference of mean.	L3	CO3	PO2
10	State central limit theorem.	L3	CO3	PO2
Part – B (Long Answer Questions)				
11	a) If X is a Normal variate with mean 30 and standard deviation 5. Find the probabilities that i. $26 \leq X \leq 40$ ii. $X \geq 45$	L4,L5	CO3	PO3
	b) If the masses of 300 students are normally distributed with mean 68 kgs and standard deviation 3kgs how many students have masses i. Greater than 72kgs ii. Less than or equal to 64 kgs	L2,SL3	CO3	PO3
12	a) A sample of 26 bulbs gives a mean life of 990 hours with a standard deviation of 20 hours. The manufacturer claims that the mean of bulbs is 1000hrs. is the sample not up to standard	L3	CO3	PO2
	b) The means of two random samples of sizes 9 and 7 are	L3	CO3	PO2

		196.42 and 198.82 respectively. The sum of the squares of the deviations from the mean are 26.94 and 18.73 respectively. Can the sample be considered to have been from the same normal population																									
13	a)	Memory capacity of 10 students were tested before and after training <table border="1"><tr><td>Before</td><td>12</td><td>14</td><td>11</td><td>8</td><td>7</td><td>10</td><td>3</td><td>0</td><td>5</td><td>6</td></tr><tr><td>After</td><td>15</td><td>16</td><td>10</td><td>7</td><td>5</td><td>12</td><td>10</td><td>2</td><td>3</td><td>8</td></tr></table> Test whether the intensive training is useful at 5% level of significance.	Before	12	14	11	8	7	10	3	0	5	6	After	15	16	10	7	5	12	10	2	3	8	L4,L5	CO3	PO1
			Before	12	14	11	8	7	10	3	0	5	6														
After	15	16	10	7	5	12	10	2	3	8																	
			L3	CO3	PO2																						
14		In a normal distribution 7% of the items are under 35 and 89% are under 63. Determine the mean and variance of the distribution	L4,L5	CO3	PO1																						
15		A population consists of five numbers 2,3,6,8,11. Consider all possible samples of size two which can be drawn with replacement from this population. Find i. The mean of the population. ii. The standard deviation of the population. iii. The mean of sampling distributions of means and iv. The standard deviation of the sampling distributions of means.	L4,L2	CO3	PO2																						
16	a)	In one sample of 10 observations from a normal population the sum of the squares of the deviations of the sample values from the sample mean is 102.4 and in other sample of 12 observations from another normal population, the sum of the squares of the deviations of the sample values from the sample mean is 120.5. Examine whether the two normal populations have the same variance.	L3,L4	CO3	PO1																						
	b)	A random sample of 10 boys had the following I.Q's 70,120,110,101,83,88,95,98,107 and 100. Do these data support the assumption of a population mean I'Q of 100.	L4	CO3	PO2																						

UNIT-IV

ESTIMATION & TESTS OF HYPOTHESES AND STATISTICAL HYPOTHESES

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	Define Type-I.	L1	CO4	PO1
2	Define critical region.	L1	CO4	PO1
3	Explain Null and Alternative Hypothesis.	L4	CO4	PO1
4	Write Standard error formula for Method of Pooling in Proportions.	L1	CO4	PO1
5	The mean and standard deviation of a population are	L3	CO4	PO1

		11795 and 14054 respectively. If $n=50$, find 95% confidence interval for the mean.															
6		A die is tossed 256 times and it turns up with an even digit 150 times. If the die is biased find the test statistic value.	L3	CO4	PO1												
7		If $n = 400, \bar{x} = 40, \mu = 38, \sigma = 10$ then find the 95% confidence limits for the population.	L1	CO4	PO1												
8		Define type-II error.	L2,L3	CO4	PO1												
9		Given $n_1 = 1200, n_2 = 900, P_1 = 0.3, P_2 = 0.25$ then find the test statistic value for difference of two proportions of large samples.	L2	CO4	PO1												
10		Define Level of Significance.	L1	CO4	PO1												
Part – B (Long Answer Questions)																	
11	a)	An ambulance service claims that it takes on the average less than 10 mins to reach its destination in emergency calls a sample of 36 calls has a mean of 11 mins and the variance of 16 mins. Test the claim at 0.05 level of significance.	L3,L4	CO4	PO2												
	b)	Explain the steps involved in the procedure for testing of Hypothesis	L2,L4,L5	CO4	PO3												
12	a)	The mean yield of wheat from a district A was 210 pounds with S.D 10 pounds per Acre from a sample of 100 plots. In another district the mean yield was 220 pounds with S. D 12 pounds from a sample of 150 plots. Assuming that the S.D of yield in the entire state was 11 pounds ,test whether there is any significant difference between the mean yield of crops.	L1,L4,L5	CO4	PO3												
	b)	Samples of students were drawn from two universities and from their weights in kilograms, mean and standard deviation are calculated and shown below. Make a large sample test to test the significance of the difference between the means <table border="1"><tr><td></td><td>Mean</td><td>S.D</td><td>Size of the sample</td></tr><tr><td>University A</td><td>55</td><td>10</td><td>400</td></tr><tr><td>University B</td><td>57</td><td>15</td><td>100</td></tr></table>		Mean	S.D	Size of the sample	University A	55	10	400	University B	57	15	100	L3,L4	CO4	PO2
	Mean	S.D	Size of the sample														
University A	55	10	400														
University B	57	15	100														
13	a)	A die was thrown 9000 times and of these 3220 yielded a 3 or 4. Is this consistent with the hypothesis that the die was unbiased?	L2,L3	CO4	PO3												
	b)	Random samples of 400 men and 600 women were asked	L3,L4	CO4	PO3												

		whether they would like to have a flyover near their residence. 200 men and 325 women were in favor of the proposal. Test the hypothesis that proportions of men and women in favor of proposal are same at 5% level.			
14	a)	A cigarette manufacturing firm claims that its brand A line of cigarettes outsells its brand B by 8%. If it is found that 42 out of a sample of 200 smokers prefer brand A and 18 out of another sample of 100 smokers prefer brand B, test whether the 8% difference is a valid claim.	L3,L4	CO4	PO3
	b)	In two large populations, there are 30% and 25% respectively of fair-haired people. Is this difference likely to be hidden in samples of 1200 and 900 respectively from the two populations.	L3,L4	CO4	PO3
15	a)	It is claimed that a random sample of 49 tyres has a mean life of 15200kms. This sample was drawn from a population whose mean is 15150kms and a standard deviation 1200 kms. Test the significance at 0.05 level for $H_1: \mu \neq 15200$	L1,L4	CO4	PO1
	b)	Explain Type-I and Type-II errors in detail with one example each.	L1,L4	CO4	PO1
16	a)	Write a short note on one-tailed and two-tailed tests.	L1,L3	CO4	PO2
	b)	In a sample of 1000 people in Telangana 540 are rice eaters and the rest are wheat eaters. Can we assume that both rice and wheat are equally popular in this state at 1% level of significance.	L3,L4	CO4	PO3

UNIT-V
APPLIED STATISTICS

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	Define correlation and regression.	L1	CO5	PO1
2	Write a short note on types of correlation.	L1	CO5	PO1
3	Criticize the following: Regression coefficient of Y on X is 0.7 and that of X on Y is 3.2.	L2,L4	CO5	PO2
4	If θ is the angle between two regression lines and standard deviation of Y is twice the standard deviation of X and $r=0.25$, find $\tan\theta$.	L2,L3	CO5	PO1
5	From the following data calculate correlation coefficient and standard deviation of Y, given $b_{xy} = 0.85$, $b_{yx} = 0.89$ and $\sigma_x = 3$.	L2,L3	CO5	PO1
6	Find the regression line of X on Y and Y on X. given $\bar{X} =$	L2,L3	CO5	PO1

		$83.67, \bar{Y} = 88.42, b_{xy} = 0.795, b_{yx} = 0.59$																																				
7		Define regression.	L1	CO5	PO1																																	
8		Write the Normal equations for second degree polynomial.	L1	CO5	PO1																																	
9		Write the properties of correlation coefficient.	L1	CO5	PO1																																	
10		Give a short note on Karl Pearson's coefficient of correlation.	L1	CO5	PO1																																	
Part – B (Long Answer Questions)																																						
11	a)	Psychological tests of Intelligence and of engineering ability were applied to 10 students. Here is a record of ungrouped data showing intelligence ratio (I.R) and Engineering ratio (E.R). Calculate the coefficient of correlation. <table border="1"><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>I</td><td>J</td></tr><tr><td>I.R</td><td>105</td><td>104</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>96</td><td>93</td><td>92</td></tr><tr><td>E.R</td><td>101</td><td>103</td><td>100</td><td>98</td><td>95</td><td>96</td><td>104</td><td>92</td><td>97</td><td>94</td></tr></table>		A	B	C	D	E	F	G	H	I	J	I.R	105	104	102	101	100	99	98	96	93	92	E.R	101	103	100	98	95	96	104	92	97	94	L4,L5	CO5	PO3
	A	B	C	D	E	F	G	H	I	J																												
I.R	105	104	102	101	100	99	98	96	93	92																												
E.R	101	103	100	98	95	96	104	92	97	94																												
	b)	Following are the rank obtained by 10 students in two subjects' statistics and Mathematics. To what extent the knowledge of the students in two subjects is related. <table border="1"><tr><td>statistics</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><td>9</td><td>10</td></tr><tr><td>Mathematics</td><td>2</td><td>4</td><td>1</td><td>5</td><td>3</td><td>9</td><td>7</td><td>10</td><td>6</td><td>8</td></tr></table>	statistics	1	2	3	4	5	6	7	8	9	10	Mathematics	2	4	1	5	3	9	7	10	6	8	L4,L5	CO5	PO4											
statistics	1	2	3	4	5	6	7	8	9	10																												
Mathematics	2	4	1	5	3	9	7	10	6	8																												
12		Obtain the rank correlation coefficient for the following data <table border="1"><tr><td>x</td><td>68</td><td>64</td><td>75</td><td>50</td><td>64</td><td>80</td><td>75</td><td>40</td><td>55</td><td>64</td></tr><tr><td>y</td><td>62</td><td>58</td><td>68</td><td>45</td><td>81</td><td>60</td><td>68</td><td>48</td><td>50</td><td>70</td></tr></table>	x	68	64	75	50	64	80	75	40	55	64	y	62	58	68	45	81	60	68	48	50	70	L4,L5	CO5	PO3											
x	68	64	75	50	64	80	75	40	55	64																												
y	62	58	68	45	81	60	68	48	50	70																												
13	a)	Calculate the regression equations of Y on X from the data given below, taking deviations from actual means of X and Y. <table border="1"><tr><td>Price (Rs.)</td><td>10</td><td>12</td><td>13</td><td>12</td><td>16</td><td>15</td></tr><tr><td>Amount Demanded</td><td>40</td><td>38</td><td>43</td><td>45</td><td>37</td><td>43</td></tr></table> Estimate the likely demand when the price is Rs.20.	Price (Rs.)	10	12	13	12	16	15	Amount Demanded	40	38	43	45	37	43	L3,L4	CO5	PO3																			
Price (Rs.)	10	12	13	12	16	15																																
Amount Demanded	40	38	43	45	37	43																																
	b)	Calculate Karl Pearson's correlation coefficient for the following paired data. <table border="1"><tr><td>X</td><td>28</td><td>41</td><td>40</td><td>38</td><td>35</td><td>33</td><td>40</td><td>32</td><td>36</td><td>33</td></tr><tr><td>Y</td><td>23</td><td>34</td><td>33</td><td>34</td><td>30</td><td>26</td><td>28</td><td>31</td><td>36</td><td>38</td></tr></table> What inference would you draw from the estimate.	X	28	41	40	38	35	33	40	32	36	33	Y	23	34	33	34	30	26	28	31	36	38	L3	CO5	PO3											
X	28	41	40	38	35	33	40	32	36	33																												
Y	23	34	33	34	30	26	28	31	36	38																												
14	a)	Using the method of least square determine the constants a and b such that $y = ae^{bx}$ fits the following data. <table border="1"><tr><td>x</td><td>0</td><td>0.5</td><td>1</td><td>1.5</td><td>2</td><td>2.5</td></tr><tr><td>y</td><td>0.10</td><td>0.45</td><td>2.15</td><td>9.15</td><td>40.35</td><td>180.75</td></tr></table>	x	0	0.5	1	1.5	2	2.5	y	0.10	0.45	2.15	9.15	40.35	180.75	L2,L3	CO5	PO2																			
x	0	0.5	1	1.5	2	2.5																																
y	0.10	0.45	2.15	9.15	40.35	180.75																																
	b)	From a sample of 200 pairs of observation the following quantities were calculated. $\sum X = 11.34, \sum Y = 20.78,$	L2,L3	CO5	PO2																																	

		$\sum X^2 = 12.16, \sum Y^2 = 84.96, \sum XY = 22.13$ <p>From the above data, show how to compute the coefficients of the equation $Y=a+bX$</p>																																																										
15		<p>Calculate coefficient of correlation between the marks obtained by a batch of 100 students in Accountancy and statistics are given below.</p> <table><tr><th rowspan="2">Marks in Statistics</th><th colspan="6">Marks in Accountancy</th></tr><tr><th>20-30</th><th>30-40</th><th>40-50</th><th>50-60</th><th>60-70</th><th>Total</th></tr><tr><td>15-25</td><td>5</td><td>9</td><td>3</td><td>-</td><td>-</td><td>17</td></tr><tr><td>25-35</td><td></td><td>10</td><td>25</td><td>2</td><td>-</td><td>37</td></tr><tr><td>35-45</td><td></td><td>1</td><td>12</td><td>2</td><td></td><td>15</td></tr><tr><td>45-55</td><td></td><td></td><td>4</td><td>16</td><td>5</td><td>25</td></tr><tr><td>55-65</td><td></td><td></td><td></td><td>4</td><td>2</td><td>6</td></tr><tr><td>Total</td><td>5</td><td>20</td><td>44</td><td>24</td><td>7</td><td>100</td></tr></table>	Marks in Statistics	Marks in Accountancy						20-30	30-40	40-50	50-60	60-70	Total	15-25	5	9	3	-	-	17	25-35		10	25	2	-	37	35-45		1	12	2		15	45-55			4	16	5	25	55-65				4	2	6	Total	5	20	44	24	7	100	L4,L5	CO5	PO3
Marks in Statistics	Marks in Accountancy																																																											
	20-30	30-40	40-50	50-60	60-70	Total																																																						
15-25	5	9	3	-	-	17																																																						
25-35		10	25	2	-	37																																																						
35-45		1	12	2		15																																																						
45-55			4	16	5	25																																																						
55-65				4	2	6																																																						
Total	5	20	44	24	7	100																																																						
16		<p>Fit a second-degree polynomial to the following data by the method of least squares</p> <table><tr><td>x</td><td>10</td><td>12</td><td>15</td><td>23</td><td>10</td></tr><tr><td>y</td><td>14</td><td>17</td><td>23</td><td>25</td><td>21</td></tr></table>	x	10	12	15	23	10	y	14	17	23	25	21	L4,L5	CO5	PO3																																											
x	10	12	15	23	10																																																							
y	14	17	23	25	21																																																							

* **Blooms Taxonomy Level (BT)** (L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analyzing;

L5 – Evaluating; L6 – Creating)

Course Outcomes (CO)Program Outcomes (PO)

Prepared By:

HOD

Y.SRI LAKSHMI DEVI

ASSISTANT PROFESSOR

MATHEMATICS, FME