2/76

2101E1228

Candidate's Seat No : _____

MBA (MM) Sem.-1 Examination

FC-105

QA & MT

Time : 2-30 Hours] **January-2025** **[Max. Marks : 70**

Q-1 **A)** Write a note on measures of central tendency and find skewness and the coefficient of skewness by Karl Pearson' s method. **14**

Life of electric (completed hours)	4000-4199	4200-4399	4400-4599	4600-4799	4800-4999	5000-5199	5200-5399	5400-5599
No. of electric bulbs	14	46	58	76	70	76	40	20

Q-2

A) (1) Fit a binomial distribution to the following data: **10**

X	0	1	2	3	4	5
f	3	6	10	8	3	2

(2) Find the mean and standard deviation of x where x is a Poisson variate satisfying the condition P (x = 2) = P (x = 3). **04**

OR

B) (1) The theory predicts the proportion of beans, in the four groups A, B, C and D should be 9 : 3 : 3 : 1. In an experiment with 1600 beans the numbers in the four groups were 882, 313, 287 and 118. Does the experimental result support the theory ? **07**

(The table Value of χ^2 for 3 d.f. at 5% level of significance 7.81)

(2) X follows normal distribution with mean as 50 and variance as 100. What is P(x ≥ 60)? Given p(1) = 0.3413 **07**

Q-3 **A)** Marks of 8 students in Mathematics and statistics are given as: **14**

Mathematics:	80	75	76	69	70	85	72	68
Statistics:	85	65	72	68	67	88	80	70

Find the regression lines. When marks of a student in Mathematics are 90, what are his most likely marks in statistics?

OR

B) (1) For the variables x and y, the regression equations are given as **10**

(P.T.O)

	$7x - 3y - 18 = 0$ and $4x - y - 11 = 0$ (i) Find the arithmetic means of x and y. (ii) Identify the regression equation of y on x. (iii) Compute the correlation coefficient between x and y. Given the variance of x is 9, find the SD of y. **(2)** While computing rank correlation coefficient between profits and investment for 10 years of a firm, the difference in rank for a year was taken as instead of 5 by mistake and the value of rank correlation coefficient was computed as 0.80. What would be the correct value of rank correlation coefficient after rectifying the mistake?	**04**
Q-4	**A)** Solve the given linear programming problem graphically: Mininize : $Z = 5x + 7y$ subject to following constraints $x + y \leq 4$ $3x + 8y \leq 24$ $5x + 2y \geqq 10$ $x, y \geqq 0$ **OR** **B)** Answer following questions. 1) What is basic condition for applying MODI method in transportation problem? 2) Explain duality problem in linear programming problem 3) Explain Assignment problem.	**14**
Q-5	**A)** Write a note on Hidden Markov Model.	**14**

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