

END TERM EXAMINATION

FIRST SEMESTER [MBA] DECEMBER 2016 - JANUARY 2017

Paper Code: MS-103

Subject: Decision Sciences

(Batch 2015 onwards)

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions.

- Q1 Write short answer on the following:- (15)
- (a) Types of correlation
 - (b) Addition Theorem of Probability
 - (c) Odds in Favour and Odds against.
 - (d) Average Deviation
 - (e) Poisson Distribution.

- Q2 (a) Calculate the coefficient of correlation from the following bivariate frequency distribution:- (7.5)

Sales Revenue (Rs. in lakhs)	Expenditure on Promotion (Rs. in thousands)				Total
	5-10	10-15	15-20	20-25	
75-125	4	1	-	-	5
125-175	7	6	2	1	16
175-225	1	3	4	2	10
225-275	1	1	3	4	9
Total	13	11	9	7	40

- (b) In a country, for its oil Industry, the product wise market structure indicates that 15% of the market is captured by branded products and 85% of the market is captured by unbranded products? If 50 oil customers are randomly selected:- (7.5)
- (i) What is the probability that exactly six customer will purchase branded oil?
 - (ii) What is the probability that exactly five or less customer will purchase branded oil?
 - (iii) What is the probability that more than seven customers will purchase branded oil?

- Q3 Use the Simplex method to solve the following LP problem (15)

Maximize $Z = 3x_1 + 5x_2 + 4x_3$

subject to the constraints

$$2x_1 + 3x_2 \leq 8$$

$$2x_2 + 5x_3 \leq 10$$

$$3x_1 + 2x_2 + 4x_3 \leq 15$$

and $x_1, x_2, x_3 \geq 0$.

- Q4 Solve the LPP using Simplex Method:- (15)

Minimize $Z = 6x + 4y$

Subject to constraints

$$-x + y \leq 1$$

$$x + y \geq 3$$

and $x, y \geq 0$