Seat No.

M.B.A. (Part - I) (Semester - I) Examination, December – 2014
MATHEMATICS & STATISTICS FOR MANAGEMENT (Paper - III) (CBCS)
Sub. Code : 57106

Day and Date : Friday, 12 - 12 - 2014   **Total Marks : 80**

Time : 10.00 a.m. to 1.00 p.m.

Instructions :
1) Questions No. 1 & 5 are compulsory.
2) Attempt any two questions from question no. 2 to 4.
3) Figures to the right indicate full marks.

Q1) a) Solve by Cramer's rule

$2x + y - z = 3, x + y + z = 1, x - 2y - 3z = 4.$ [10]

b) Define properties of regression coefficient

If the equations of lines of regression are $6y = 5x + 90$, $15x = 8y + 130$, Find :

i) $\overline{X}$ & $\overline{Y}$

ii) Correlation Coeff. Between X & Y.   [10]

Q2) a) Define mean Deviation (M.D) & Standard deviation (S.D.) Find M.D about Mean for the following data?   [10]

31, 35, 29, 63, 55, 72, 37

b) Define types of matrix   [10]

If $A = \begin{bmatrix} 2 & 4 \\ 5 & 5 \end{bmatrix}$ $B = \begin{bmatrix} 4 & 2 \\ 2 & 4 \end{bmatrix}$

Find matrix X such that $2A + B + 4X = 0.$

Q3) a) Explain Cyclical variation. Compute 3 yearly moving average from the following data.

Year :	1992	1993	1994	1995	1996	1997	1998
Production :	50	46	42	49	52	40	54

b) A radio manufacturer is planning production of a new type of radio. The fixed cost of setting up the production is Rs. 1,35,000. Variable cost of producing each set is Rs. 250. Each unit can be sold for Rs. 400. **[10]**

Determine :

i)   The cost function.

ii)   The revenue function.

iii) The profit function.

iv)   The break – even point

Q4) a) Calculate Lasperyre's, Paasche's and Fisher's price index number from the following data **[10]**

Commodity	2004 Price	2004 Quantity	2006 Price	2006 Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

b) Means & rages of 10 samples of size S. Each are given below. Draw chart and state your conclusion.

(Given n = 5, A2 = 0.58, D3 = 0, D4 = 2.11) **[10]**

Sample	:	1	2	3	4	5	6	7	8	9	10
Mean	:	43	49	37	44	45	37	51	46	43	47
Range	:	5	6	5	7	7	4	8	6	4	6

Q5) Write short notes (any 4) **[20]**

a)   Types of correlation.

b)   Components of time series.

c)   Probability density function (PDF)

d)   Index number.

e)   Characteristics of good measures of dispersion.

f)   Merits and demerits of median.

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