Seat No.

M.B.A.(Part - I) (Semester - I) Examination, December - 2015
MATHEMATICS AND STATISTICS FOR MANAGEMENT
(Paper - III)
Sub. Code : 48322

Day and Date : Monday, 28 - 12 - 2015   Total Marks : 70
Time : 10.30 a.m. to 01.30 p.m.

Instructions :   1)   Question No. 1 and Q. No. 5 are compulsory.
                  2)   Attempt any two questions from Question No. 2 to 4.
                  3)   Figures to the right indicate full marks.
                  4)   Use of non programmable calculator is allowed.

Q1) A) i)   Evaluate the following:

a) $\lim\limits_{x \to 0} \dfrac{x^3 - x^2 + 3x}{x^2 - 2x}$

b) $\dfrac{d}{dx}\left(\sqrt{2x+1}\sqrt{x+5}\right)$

c) $\dfrac{d}{dx}\left(\dfrac{x^2 + 2x}{x^2 + 2}\right)$

ii)   At what rate will Rs. 5000 yield a simple interest of Rs. 400 in half year?   **[6+4]**

B)   Find mean, median and mode of the following data.   **[10]**

X	12	14	16	18	20	22
f	15	17	40	20	13	25

Q2) A)   Find the inverse of following matrix by adjoint method.

$$A = \begin{pmatrix} 2 & 2 & 1 \\ 3 & 0 & 1 \\ -1 & -1 & -1 \end{pmatrix}$$

P.T.O.

B) Define correlation coefficient. Find Karl Penrson's correlation coefficient for the following data.

X	12	15	17	18	15	13	19	20
y	54	62	68	74	60	62	70	80

[8+7]

Q3) A) Solve the following by Cramer's rule.

$3x + y - z = 3$

$x - 2y + 3z = 2$

$2x + y + 2z = 5$

B) Draw mean $(\bar{X})$ chart for the following data.

Sample	1	2	3	4	5	6	7	8	9	10
Mean	12.8	13.2	13.6	12.9	13.8	14.8	12.2	15.5	13.9	14.2
Range	2.1	3.1	3.9	2.1	1.9	3	2.5	2.8	2.5	2

$(n = 5, A_2 = 0.58)$

[8+7]

Q4) A) Find mean deviation (M.D) about mean and coefficient of M.D for the following data.

X	0-10	10-20	20-30	30-40	40-50	50-60
f	10	25	13	12	23	17

B) Define time series and compute three yearly moving averages for the following time series.

Year	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008
Values	36	45	52	50	58	68	70	66	72	70

[8+7]

Q5) Write Short Note on (Any four)

[20]

a) Function.
b) Construction of Index number
c) Application of matrices in business.
d) Quality control charts
e) Correlation
f) Measures of central tendency.

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