

Seat No.	
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M.B.A. (Part - I) (Semester - I) Examination, May - 2014
MATHEMATICS AND STATISTICS FOR MANAGEMENT
(Paper - III)
Sub. Code : 48322

Day and Date : Monday, 26-05-2014

Total Marks : 70

Time : 2.30 p.m. to 5.30 p.m.

- Instructions :**
- 1) Question No.1 and 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:

1) $\lim_{x \rightarrow 3} \frac{x^2 + x - 12}{x - 3}$

2) $\lim_{x \rightarrow 1} \left(\frac{1}{x-1} - \frac{1}{x^2-x} \right)$

3) $\frac{d}{dx} \left(\frac{x^2 + 2x + 1}{x + 2} \right)$

ii) At what rate will Rs. 10,000 yield a simple interest of Rs. 800 in 2 years? [6+4]

b) Find mean & median of the following data. [10]

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	15	25	30	20	15	5

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

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

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- b) Define correlation coefficient. Find Karl Pearson's correlation coefficient for the following data.

X	60	62	64	66	68	70	72	74
Y	92	83	101	110	128	119	137	146

[8+7]

- Q3) a)** Solve the following by Cramer's rule.

$$x + 2y - 3z = 8$$

$$2x - y + z = -1$$

$$x + 2y + 2z = 3$$

- 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 standard deviation (S.D.) and coefficient of variation (C.V.) for the following data.

X	10	20	30	40	50	60	70	80
f	15	20	18	12	13	19	20	13

- b) Define time series and compute five yearly moving averages for the following time series.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Values	78	67	107	142	152	155	160	177	155	163

[8+7]

- Q5)** Write a short note on (any four)

[20]

- Functions in economics and business.
- Index number.
- Types of matrices.
- Statistical quality control.
- Regression.
- Measures of dispersion.

