CBCS. F- 591

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Seat No.	

M.B.A. (Part-I) (CBCS) (New) (Semester - I) Examination, Dec. -2013

MATHEMATICS & STATISTICS FOR MANAGEMENT

(Paper - III)

Sub. Code :57106

Day and Date : Friday, 27 - 12 - 2013 **Total Marks : 80**

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

Instructions :
1) **Q. No. 1 and Q. No. 5 are compulsory.**
2) **Attempt any two questions from Q. No.2 to 4.**
3) **Figures to the right indicate full marks.**
4) **Use graph papers where ever necessary.**

Q1) a) Verify A (B+C) = AB+ AC for the matrices. **[10]**

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

b) Define correlation. Compute pearson's correlation coefficient between Age of husband and Age of wife. **[10]**

Age of husband:	21	26	28	25	33	30	31	34
Age of wife :	19	20	21	23	25	26	27	29

Q2) a) For the matrices given below prove that det(AB) = det(A) .det(B). **[10]**

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

b) Define standard deviation. Compute S.D. and C.V. for the data given below. **[10]**

X:	10	15	20	25	30	35	40
f:	8	12	21	29	23	17	10

P.T.O.

Q3) a) i) If you have a bank account whose principal is Rs.1000 and your bank compounds the interest twice a year at an interest rate of 5%.How much money does you in your account at the year's end?

ii) If you start a bank account with Rs.5000 and your bank compounds the interest quarterly at an interest of 8%. How much money do you have at the year's end? **[10]**

b) Calculate Laspeyre's, Paasche's and Fisher's Price Index Number from following data. **[10]**

	1996		1997	
Commodity	price	Quantity	price	Quantity
A	10	6	15	5
B	12	10	15	10
C	18	5	27	3
D	8	5	12	4

Q4) a) 10Samples each of size 5 are drawn at regular interval from a manufacturing process. The sample $(\overline{X})$AND R is given below. **[10]**

Sample No:	1	2	3	4	5	6	7	8	9	10
Mean$(\overline{X})$:	49	45	48	53	39	47	46	39	51	45
Range(R):	7	5	7	9	5	8	6	8	7	6

Draw control chart for mean and state your conclusion.(Given A_2=0.58)

b) The marks of 1000 students are Normal with mean 20 and S.D. OF 4. **[10]** Find the number of students scoring.

i) Less than 16 marks.

ii) between 16 to 23 marks.

(Area between Z= 0 and Z=1 is 0.3413, between Z=0 and Z=0.75 is 0.2734).

Q5) Write notes on (any four): **[20]**

a) Components of time series. b)Index Numbers.

c) Characteristics of good measures of central tendency.

d) Functions used in business and economics.

e) Regression. f)Binomial distribution.

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