Question Paper 2012

Time : 3 Hours Marks: 100

Note: Attempt any five questions. All questions carry equal marks. Attempt at least two Questions from each section.

SECTION 1

Question No.1

The mid-values of a frequency distribution are given as:

Mid Value	115	125	135	145	155	165	175	185	195
Frequency	6	25	48	72	116	60	38	22	2

Calculate:

(i) A.M
(ii) Mode
(iii) Coefficient of Skewness

Question No.2

(a) The number of units produced by a process (x) and the cost of producing unit (y) were made as:

Find:

(i) The coefficient of correlation
(ii) The regression equation of y on x

(b) Construct index number of Prices with the help of following data by:

(i) Laspeyr's
(ii) Paasche's
(iii) Fisher's
(iv) Marshall Edge worth Formula

Commodity	Base Year		Current Year	
	Quantity	Price	Quantity	Price
A	150	6	140	8
B	180	10	160	12
C	110	16	80	20
D	120	20	100	24

Question No. 3

Test independence of two classifications in the following contingency table at 5% level of significance:

Attributes	A1	A2	A3	A4
B1	42	72	72	72
B2	33	62	82	64
B3	37	121	93	90

(The table value of Chi-Square is 12 59)

Question No. 4

A population consists of five values 2, 4, 6, 8, 10. Take all possible samples of size n = 2 from this population without replacement.

Find:

(i) Mean and Variance for population
(ii) Mean and unbiased Variance of each sample.
(iii) Average of the means of all samples and average of the variances of all samples.

SECTION 2

Question No. 5

If A = $\begin{pmatrix} 0 & 1 & 3 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{pmatrix}$ Then obtain A^{-1} , (Inverse of A)

Question No. 6

(a) Solve for X the equation:

x= ($\sqrt{x+3}$) - 3

(b) Solve the following system of equations:

9x + 15y = 123
15x + 93y = 201

Question No. 7

(a) Show that the sum of geometric series of 6 terms;

1/3, -1/9, 1/27, -1/81 …… is 182/729

(b) The first term, of an AP is 5, the last term 45 and the sum 400. Find number of terms and common difference in the series.

Question No. 8

Mohsin had it note tor Rs. 1.5000 with an interest rate of 6%. The note an, dated January 12, 2003 and maturity date was 90 days after date On January 27, 2003, he took the note to his bank, loch discounted it at a discount rate of 7%.

How much .did he receive? (Take 360 days in the year)