Question Paper 2011

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

Classes	Frequency
12.5 – 17.5	2
17.5 – 22.5	22
22.5 – 27.5	19
27.5 – 32.5	14
32.5 – 37.5	3
37.5 – 42.5	4
47.5 - 52.5	6
52.5 – 57.5	1

Required: Obtain mean, median, and Co-efficient of variation

Question No. 2

X: 5   6   7   8   9   10   11   12   13   14   15

Y: 9   7   10   3   13   11   14   10   14   12   18

Required: Calculate coefficient of correlation and also the line of regression y on x

Question No. 3

A population consists of six numbers 3, 6. 9. 12, 15, and 18. Consider all possible samples of size three numbers, which can be drawn without replacement from this population.

Find:

(i) The mean of the population

(ii) The standard deviation of the population.

(iii) The mean of the sampling distribution of the means.

(iv) The standard error

Question No. 4

The following data gives the prices and quantities of various commodities for the year 1995 and 2002
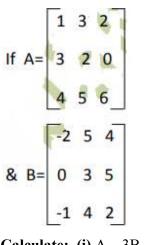
Commodity	Prices (Rs. Per Quintal		Quantities (1000 of Quintals)	
	1995	2002	1995	2002
A	60	80	270	290
B	40	45	125	140
C	20	25	130	140
D	55	70	270	350

Calculate weighted index number of prices for the year 2002 by taking the year 1995 as base year and using formulae recommended by Laspeyre, Fisher, Paache's and Marshall.

SECTION 2

Question No. 5

If $A = \begin{bmatrix} 1 & 3 & 2 \\ 3 & 2 & 0 \\ 4 & 5 & 6 \end{bmatrix}$

& $B = \begin{bmatrix} -2 & 5 & 4 \\ 0 & 3 & 5 \\ -1 & 4 & 2 \end{bmatrix}$

Calculate: (i) $A - 3B$ (ii) AB

Question No. 6

(a) Solve the following: $X^2 + 5x = 50$

(b) The sum of two consecutive even integers is 66. Find the numbers.

Question No. 7

(a) The 54th and 4th terms of an A.P are -61 and 64 respectively. Show that the common difference is – 2.5 and 23 term is 16.5.

(b) Show that the sum of the series

$0.53 + 0.0053 +$ — $53 + 0.000053 +……$ to infinity is 53/99

Question No. 8

(a) A property changed hands 3 times and at each time the loss to the seller was 10%. If in the last transaction the loss was Rs. 202.50. Find out the original value of the property.

(b) The difference between the simple and compound interest on a certain sum is Rs. 31 for three years at 10% p.a. Find out the sum.