

## Question Paper 2015

**Time : 3 Hours    Marks: 100**

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

### SECTION - I

#### Question No.1

Compute Arithmetic Mean, Median, Variance and Pearson's Coefficient of Skewness.

Monthly Income Rs	No of Families	Monthly Income Rs	No of Families
110-119	2	160-169	18
120-129	4	170-179	13
130-139	17	180-189	6
140-149	28	190-199	5
150-159	25	200-209	2

#### Question No.2

- (a) Two coins are tossed. Show that the probability of getting at least one head is  $\frac{3}{4}$   
 (b) The results of the use of two drugs in the treatment of a certain disease are as follows

	Recovered	No Change	Died
Drug - A	40	18	12
Drug - B	50	8	7

Test association using chi-square statistic. Tabulated value of chi-square for 2 degree of freedom at 5% level of significance is 5.99

#### Question No.3

From the following Data, Compute index number for 2003, taking the price of 2002 as base. Use Laspeyre's, Paasche's Marshall's and Fisher's Formulae:

Years	A		B		C		D		E	
	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.
2002	9	10	6	80	3	17	9	20	6	30
2003	11	5	9	100	2	20	7	15	8	40

**Question No. 4**

A population consists of six numbers 3,6,9,12,15 and 18. Consider all possible samples of size  $n=2$ , which can be drawn without replacement from this population,

**Calculate:**

- (i) The mean of population
- (ii) The standard deviation of population
- (iii) The mean of the sampling distribution of means.
- (iv) The standard error.

**Section – II****Question No.5.**

The matrices A And B are given as follows:

$$\text{If } A = \begin{pmatrix} 13 & 2 & -6 \\ -3 & 9 & 0 \\ 8 & 4 & -1 \end{pmatrix} \text{ and } B = \begin{pmatrix} 11 & -2 & 6 \\ 9 & -14 & 3 \\ -4 & 8 & 5 \end{pmatrix}$$

**Obtain:** (i)  $A+2B$     (ii)  $3A-4B$     (iii)  $AB$

**Question No. 6**

(a) Solve the following simultaneous equations:

$$\frac{2}{x} + \frac{3}{y} = 2$$

$$\frac{8}{x} + \frac{9}{y} = 7$$

(b) If a car traveled 5 kilometers an hour faster it would take one hour less to travel 210 kilometers. What is the speed of the car and what time does it take.

**Question No.7**

A drilling company contracted to drill a well at a cost of Rs.30 for the first foot. Rs. 35 for the second foot, Rs. 40 for the third foot and so on. How deep a well can be drilled for Rs. 3,075

**Question No.8**

Mr.Ahmed deposits Rs. 500 at the end of each quarter. So as to accumulate a sum of Rs. 10,000 to purchase a refrigerator. If the interest rate is 5% per annum compounded quarterly, How many such quarterly deposits he will have to make.