

**Question Paper 2018****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**

Calculate the co-efficient of Skewness from the following frequency distribution

<b>Ages (years)</b>	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
<b>No. of men</b>	29	176	208	173	82	40	15	3

**Question No.2**

Calculate the co-efficient of correlation and obtain the lines of regression of the following data:

<b>Price (x)</b>	3	4	5	6	7	8	9	10	11	12
<b>Demand (y)</b>	25	24	20	20	19	17	16	13	10	6

**Question No. 3**

A population consists of 8 values: 2, 4, 6, 8, 10, 12, 14, 16. Select all possible random samples of size 2 from this population using without replacement and find the mean of each samples. Make sampling distribution of means and find its mean and variance. Also compute the mean and variance of the population. Verify the mean and the variance of the sampling distribution with the mean and variance of the population respectively.

**Question No.4**

- (a) Two fair coins are tossed. Find the probability distribution of X, the number of heads. Also obtain the expected value of x.
- (b) Compute Fisher's Ideal Price Index number for 2005 using 1998 as base:

Commodity	Price (Rs.)		Quantity	
	1998	2005	1998	2005
Rice	35	32	71	80
Barely	20	18	107	138
Maize	26	20	62	57

## SECTION – II

### Question No.5

- (a) Solve the equation :  $x^2 + 5x = 50$
- (b) The sum of two consecutive even integers is 66. Find the numbers.

### Question No. 6

Find the inverse of the matrix

$$\begin{pmatrix} 1 & 2 & 1/2 \\ 4 & 5 & 6 \\ 1 & 3 & -2 \end{pmatrix}$$

### Question No.7

- (a) The 5<sup>th</sup> and the 13<sup>th</sup> term of an A.P are 5 and -3 respectively. Find the A.P and 16<sup>th</sup> term.
- (b) A company offers two alternatives for the payment of salary to the post of an employee. Either he may receive Rs. 240,000 per years of Rs.100 in the first month Rs. 200 in the second month, Rs. 400 in the third month and so on . Which of the two alternatives should he prefer?

### Question No.8

An investor is considering two ways of investing Rs. 200,000 for a period of 10 years . Option A offers 1.5 percent compounded every 3 months, Option B offers 3.2 percent compounded every 6 months. Which is the better option.