

**Question Paper 2010****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**

Wages (Rs)	No of Workers
117-124	13
124-131	17
131-138	33
138-145	47
145-152	56
152-159	73
159-166	81
166-173	65
173-180	55
180-187	40
187-194	20

**Required:** Calculate Arithmetic Mean, Harmonic Mean, Standard Deviation and Co-efficient of variation

**Question No. 2**

**X:** 16, 72, 73, 63, 83, 80, 66, 66, 74, 62

**Y:** 40, 52, 43, 49, 61, 58, 44, 58, 50, 45

**Required:** Calculate coefficient of correlation and comment on the answers.

**Question No. 3**

Test for Association

	<b>A1</b>	<b>A2</b>	<b>A3</b>
<b>B1</b>	20	15	30
<b>B2</b>	30	1B	35
<b>B3</b>	35	20	40

(Tabulated value of chi-square for 4 degrees of freedom at 5% level of significance = 9488)

**Question No. 4**

Construct index no for 2002 from the following data taking 2000 as base using

- (i) Laspeyre's Index Number
- (ii) Paasche's Index Number
- (iii) Fisher's Index Number.

Commodity	2000		2002	
	Price	Quantity	Price	Quantity
A	5	100	6	120
B	7	120	10	80
C	10	80	12	80
D	4	50	5	60
E	8	70	8	80

**SECTION 2**

**Question No. 5**

$$\text{If } A = \begin{bmatrix} 1 & 4 & 3 \\ 2 & 1 & 8 \\ 1 & 1 & 2 \end{bmatrix}$$

$$\text{ \& } B = \begin{bmatrix} 2 & 1 & 2 \\ 0 & -4 & 8 \\ 6 & 1 & 4 \end{bmatrix}$$

Calculate (i)  $A+B$  (ii)  $2A - 3B$  (iii)  $AB$

**Question No. 6**

(a) Solve the following simultaneous equations  $2x + y = -7$

$$3x + 2y = -12$$

(b) Solve the quadratic equation  $6x^2 - 5x - 6 = 0$

**Question No. 7**

Find out the compound amount and compound interest at the end of 3 years on a sum of Rs 20,000, borrowed at 6% compounded annually

**Question No. 8**

A 90 days Rs. 4,000, 7% interest bearing note dated April 4, was discounted on May 4, at a discount rate of 8%. What was the discounted value of the note? (Take 360 days in the year)