

Duration: 2 ½ Hrs.

Marks: 75

Instructions: -

- 1) All the questions are compulsory.
- 2) Use simple non programmable calculator.
- 3) Graph papers will be provided on request.

Q.1 Solve Any Three :

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- A) Describe various uses of statistics.
- B) Draw Simple Bar diagram using graph.

Centre	No. of Students
Bombay (South )	630
Dadar	540
Andheri	710
Ghatkopar	350
Thane	380

- C) Find mean and median for the following data :

Class Interval	10 – 30	30 - 50	50 - 70	70 – 90	90 - 110	110 - 130
Frequency	4	10	14	12	8	6

- D) Draw the histogram and the frequency curve on graph paper.

Daily Wages in Rs.	No. of Workers
40 – 50	12
50 – 60	20
60 – 70	40
70 – 80	50
80 – 90	34
90 – 100	16
100 – 110	12
110 - 120	8

Q.2 Solve Any Three :

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- A) Calculate M.D. from mean and corresponding coefficients of M.D. for the following data.

Daily wages in Rs.	63 – 67	68 – 72	73 – 77	78 – 82	83 – 87	88 – 92	93 – 97	98 – 102	103 – 107
No. of Workers	2	22	19	14	9	4	3	1	1

- B) Find the coefficient of correlation for the following data.

X	25	20	17	16	20	14	23	21	15	12
Y	24	17	22	18	20	18	24	20	16	14

- C) Calculate rank correlation co-efficient for the following data respectively marks in Economics ( x ) and marks in English ( y ) .

X	56	37	65	60	54	51	40	70
Y	50	42	55	48	51	53	38	47

- D) The regression equation of y on x is  $2x - 3y + 14 = 0$  and that of x on y is  $3x - y - 42 = 0$ . Find the correlation co-efficient.

## Q.3 Solve Any Three :

- A) Find five yearly moving average and plot graph.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005
Time Series	87	90	92	98	105	93	100	110	125

- B) For the following data calculate index number by

- (i) Aggregative Method (ii) Average Price Relative Method

Items	Price in Rs.	
	Base year	Current year
A	4	5
B	12	16
C	6	9
D	30	40
E	8	11

- C) Find three yearly moving averages and plot a graph on paper.

Year	2000	2001	2002	2003	2004	2005	2006	2007
Exports	46	53	72	57	62	78	60	85

- D) From the following data calculate

- (i) Laspeyre's (ii) Paasche's (iii) Fisher's

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	5	6	20	25
B	3	6	25	18
C	4	5	12	15

## Q.4 Solve Any Three :

- A) A box contains 5 white balls and 3 black balls. If 5 balls are selected from the box, what is the probability that 3 of them are white?

- B) Explain the following terms : - (i) An event (ii) Sample space of an experiment.

- C) Given the following pay-off table, find optimal decision using criterion

- (i) Maximin (ii) Maximax (iii) Laplace

Course of Action	States of Nature		
	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
A <sub>1</sub>	35	100	38
A <sub>2</sub>	58	95	105
A <sub>3</sub>	45	30	91

- D) Draw and calculate decision tree pay-off table.

Course of Action	States of Nature		
	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>
A <sub>1</sub>	25000	35000	40000
A <sub>2</sub>	50000	20000	10000
Probability	0.3	0.5	0.2

Q.5 Solve Any Three :

A) Find mode and locate it graphically.

Daily Wages in Rs.	400 – 500	500 – 600	600 – 700	700 – 800	800 – 900
No. of Employees	15	26	36	20	10

B) Find the standard deviation for the following distribution :

Size of Shoe	7	8	9	10	11
No. of Persons	5	10	20	10	5

C) Two fair dice are rolled. If  $X$  denotes the sum of the numbers appearing on the uppermost faces of the dice. Find (i)  $P(x < 4)$  (ii)  $P(x \geq 10)$  (iii)  $P(3 < x < 7)$ . If  $s$  is a sample space of the experiment.

D) From the following data calculate (i)  $I_L$  (ii)  $I_P$  (iii)  $I_F$

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
Rice	4	15	5	20
Pulses	8	20	12	30
Sugar	6	25	8	20
Oil	14	10	21	15

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