

Note: 1. Figures to the right indicate full marks.

2. Use simple calculator.
3. Graph paper os not compulsory.
4. All questions are compulsory.

- Q.1 A. Define:** 1. Statistics (2)
2. Averages (Any 3) (3)

- B. Prepare a frequency distribution for following data of weights of 30 children. (4)**
(taking classes as 20 - 25, 25 - 30, so on)

33 21 27 37 34 32 31 26 31 28

24 35 39 27 37 27 23 30 41 32

40 25 33 26 36 44 34 29 43 37

- C. Draw Histogram for the following data and locate mode in the graph. (4)**

Tax in '00 ₹.	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
No. of employees	12	20	25	36	18	12	08

- D. The average marks of a group of students are 57. The mean of marks of 70 of them are 60 and the mean of marks of the remaining students are 50, Find the total number of students. (2)**

OR

- Q.1 A. For the following data of age distribution of 60 boys draw an ogive curve of loss than type. (5)**

Age	No. of boys
10 - 12	5
12 - 14	9
14 - 16	15
16 - 18	17
18 - 20	10
20 - 22	4

Also locate median.

- B. Find the missing frequency if the arithmetic mean of the following distribution is 1 - 46. (5)**

No. of accidents	0	1	2	3	4	5
No. of days	46	76	—	25	10	5

- C. Find the median and mode for the following data. (5)**

Income ₹.	500 - 1000	1000 - 1500	1500 - 2000	2000 - 2500	2500 - 3000
No. of Persons	30	50	100	40	30

Q.2 A. Calculate quartile deviation and coefficient of quartile deviation for the following data of 50 shops. (6)

Sales (in ' 000 ₹.)	No of Shops
100 - 110	4
110 - 120	7
120 - 130	20
130 - 140	9
140 - 150	6
150 - 160	4

B. Calculate the standard deviation and coefficient of variation for the following data. (5)

IQ	No. of Children
80 - 90	2
90 - 100	8
100 - 110	45
110 - 120	50
120 - 130	30
130 - 140	15

C. Find the coefficient of correlation for the following data. (4)

$$\Sigma x = 96, \quad \Sigma y = 84, \quad \Sigma x^2 = 1128, \quad \Sigma y^2 = 1380, \quad \Sigma xy = 312, \quad n = 12$$

OR

Q.2 A. For a bivariate data, the sum of squares of differences between ranks is 69, the number of pairs is 9. What is the Spearman's Coefficient rank correlation? (2)

B. The ranks given by two Judges in a competition are as follows. Find the coefficient of rank correlation. (4)

R_1	1	2	3	4.5	4.5	6	7	8
R_2	7	6	4	4	4	8	2	1

C. Find the coefficient of correlation given by Karl Pearson's product moment formula. (4)

x	15	20	25	20	05	35
y	20	20	35	25	10	70

D. Find the mean & standard deviation of combined group. (5)

	Group I	Group II
Number	100	50
Mean	60	90
S.D.	4	6

Q.3 A. Define any 2 properties of regression equations. (2)

B. Find regression equation Y on X when, (4)

$$\Sigma x = 1, \quad \Sigma y = 3, \quad \Sigma x^2 = 7, \quad \Sigma xy = 30, \quad n = 6$$

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979
Sales ('000 ₹.)	98	105	103	100	107	106	103	102	112

- D. Find Laspeyre's and Paasche's Index numbers for following data. (4)

Commodity	1996 (Base)		1997	
	Price	Quantity	Price	Quantity
A	2	74	3	82
B	5	125	4	140
C	7	40	6	52

OR

- Q.3 A. Calculate Fisher's Ideal Index Number. (5)

Commodity	Price		Quantity	
	Base yr.	Current yr.	Base yr.	Current yr.
A	10	12	100	95
B	16	19	30	30
C	15	17	80	75
D	16	20	100	90

- B. From the following regression equation, calculate \bar{x} , \bar{y} and r . (6)
 $100y - 45x - 1400 = 0$ & $4y - 5x + 200 = 0$

- C. Find mean deviation about median for the following data. (4)

CI	10 - 20	20 - 30	30 - 40	40 - 50
f	2	18	16	4

- Q.4 A. 1. Define the mutual exclusive (disjoint) events. If two events A and B are disjoint then what is $P(A \cup B) = ?$ Explain on the basis of addition law. (2)

2. Two dice are thrown simultaneously, find probability of getting the sum of 5 or 9. (4)

- B. Two cards are drawn from a pack of cards, what is the probability that they are from different suits. (4)

- C. The monthly demand of transistors is known to have the following distribution. Find expected value and variance.

Demand	1	2	3	4	5	6
Probability	0.15	0.20	0.25	0.20	0.15	0.05

OR

- Q.4 A.**
1. Explain probability Distribution with an example. (2)
 2. Explain the meaning of EMV and how it is calculated? (2)
 3. Draw and explain the normal curve. (2)
- B.** There are 80 members of gymkhana 60 of them play table tennis. 80 play lawn tennis and 15 play both games. If a member is selected at random what is the probability that he plays
1. table tennis
 2. Only table tennis
 3. both the games
 4. Neither of the two games
- C.** Meena wants to invests Rs. 10,00,000. She has two options. She can invest in government securities which give returns at 8.25% annually. She can also avail an offer from a friend to invest in her business. In that business there is a chance of getting returns at 10%, 9% and at 8% with 0.3, 0.4 and 0.3 probability respectively. Where should Meena invest her money. Use decision tree. (5)

