

TIME : 2 Hrs.

MN10AET

MARKS : 60

Q.1. A) Give a definition of statistics and explain. (4)

B) For the following data draw Less than type and more than type ogive. Also locate median. (6)

Marks	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	5	15	24	20	16	10

C) Prepare a frequency distribution for the following data giving the time (minutes) taken to complete a task by 50 employees. (Take class intervals as 100-105, 105-110,)

105, 107, 100, 111, 119, 132, 125, 119, 109, 134
 127, 123, 112, 129, 129, 122, 115, 112, 115, 120
 121, 125, 116, 117, 115, 127, 124, 120, 111, 117
 130, 108, 121, 102, 112, 125, 102, 118, 114, 126
 109, 113, 103, 122, 110, 114, 109, 121, 119, 116

OR

Q. 1. A) Find the missing frequency given that the arithmetic mean of advertising expenditure is Rs. 5625. (5)

Advt. Expenditure (Rs.)	No. of Companies
2000 - 3000	10
3000 - 4000	15
4000 - 5000	30
5000 - 6000	—
6000 - 7000	65
7000 - 8000	25

B) Find Q1 and Q4 for following data : (5)

Class Interval	8 - 10	10 - 12	12 - 14	14 - 16	16 - 18	18 - 20
frequency	15	25	70	60	20	10

C) The purchase made by 100 customers in a departments store is as below. Find modal value of the amount. (5)

Amount in Rs	200 - 300	300-400	400-500	500-600	600-700	700-800
No. of customers	3	10	30	34	18	5

Q.2. A) Find combined mean and combined standard deviation (6) for first group $X_1 = 54.4$, $SD (6_1) = 8$ and size $n_1 = 50$ and for second group $X_2 = 50.3$, $SD (6_2) = 7$ and size $n_2 = 100$.

B) Calculate mean deviation from median for the following data: (5)
54, 56, 54, 57, 45, 50, 53, 53, 52, 51, 54, 54, 54

C) Calculate the coefficient of correlation between index of demand and index of price given below and comment. (5)

Index of demand	108	101	107	109	105
Index of price	98	117	118	110	102

OR

Q.2. A) Marks of two subjects maths and accounts for 6 students is given below. Find the coefficient of Rank correlation. (5)

Marks in Maths	80	65	65	75	40	70
Marks in Accounts	50	70	65	80	50	75

B) Find the regression equations given the following data:
 $X = 70$, $Y = 80$, regression coefficients $b_{yx} = 1.5$ and $b_{xy} = 0.6$. Also find (.....) correlation coefficient. (5)

C) Calculate the standard deviation for the following data. (5)

CI	300 - 400	400 - 500	500 - 600	600 - 700	700 - 800
frequency:	2	3	8	4	3

Also calculate coefficient of variation.

Q.3. A) Fill in the values Q (?) mark is printed in the following portion of Life table. (5)

Age (x)	l_x	d_x	P_x	q_x	L_x	T_x	e_x^0
11	74600	?	?	?	?	3266067	?
12	74340	-	-	-	-	?	-

B) A bag contain 3 white and 4 black balls. If two balls are drawn at random from the bag, find the probability that (i) both balls are white. (ii) One is

Q. 3. A) Write a short note on Life Table.

(4)

B) Find the crude death rate and age-specific death rates for each age-group for the following date.

(6)

Age group Years	Population	Number of Deaths
Under 10	10,000	220
10 - 30	15,000	105
30 - 50	20,000	240
above 50	15,000	525

C) There are 10 girls in a group dance. 5 of them wear a blue dress, 3 wear a white dress and the remaining 2 wear a pink dress. If a girl is selected at random to represent the group, what is the probability that her dress is (i) pink (ii) blue or white.

(5)

Q. 4. A) What are the different methods of sampling?

(5)

B) Explain briefly surrender value and paid up value

(4)

C) For the following data find Fishers index number for year 1995 with base 1990.

(6)

Commodity	Price inRs.		Quantity	
	1990	1995	1990	1995
A	10	12	20	22
B	13	13	23	24
C	16	18	20	18
D	20	18	5	6
E	18	20	7	8

Which index number is called as ideal why?

OR

Q. 4. A) Find Laspeyre's & Paasche's index numbers from the following data :

(5)

Commodity	Price inRs.		Quantity	
	Base Year	Current yr.	Base Yr.	Current Yr.
A	5	7	60	55
B	6	8	50	60
C	4	6	70	60
D	10	12	70	70

P.T.O.

B) Following distribution gives the cost minute request for a seat in an airline. (5)

Number of requests	0	1	2	3	4
Probability	0.35	0.3	0.15	0.15	0.05

What are the expected number of seats and its variance ? how many seats should the airline reserve ?

C) 8 annual premiums have been paid for a 20 year term policy of Rs. 10,00,000 by Mr. XYZ. Now he is not able to pay the remaining premiums and converted to a paidup policy. Find its paid up value. (5)



(C) There are 10 girls in a group. 5 of them wear a blue dress, 3 wear a white dress and the remaining 2 wear a pink dress. If a girl is selected at random to represent the group, what is the probability that her dress is (i) pink (ii) blue or white (5)

Q.4. A) What are the different methods of sampling? (5)

B) Explain briefly surinder value and paid up value. (5)

C) For the following data find Fisher's index number for year 1995 with base 1990. (5)

Commodity	Price in Rs. 1990	Price in Rs. 1995	Quantity
A	10	12	10
B	13	13	12
C	16	18	20
D	20	18	18
E	18	20	8

Which index number is called as ideal why? (5)

Q.5. A) What all is required to find the index number? (5)

B) Find Fisher's index number from the following data. (5)

Commodity	Base Year	Current Year	Base Year	Current Year
1	100	110	100	110
2	100	105	100	105
3	100	108	100	108
4	100	102	100	102
5	100	107	100	107