

- NOTE: 1) All questions are compulsory and carry equal marks.
2) Figures to right indicate marks of each sub question
3) Use of simple calculator is allowed

Q.1. a) Calculate Q1, D4, P77.

Age in years	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70
No. of teachers	21	19	50	40	16	20	10	10	05	09

(8)

b) (i) Find the Coefficient of Correlation

Class work	12	14	23	18	10	19
Annual Exam	68	78	85	75	70	74

(5)

(ii) Find the Coefficient of Rank Correlation

R1	1	2	3	4	5
R2	5	4	3	2	1

(2)

OR

Q.1. a) Calculate Mean Deviation from Mode

Profits in (1000 Rs.)	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of Shops	15	29	31	42	56	35	18

(8)

b) Given the following Regression equation find X, Y and r.

$100Y - 45X - 1400 = 0$, $4Y - 5X + 200 = 0$

(7)

Q.2. Fit a straight line trend to the following (Using least square method)

Year	1959	1960	1961	1962	1963	1964	1965	1966
Sales	38	40	65	72	69	60	87	95

(15)

OR

Q.2. a) Calculate 4 yearly moving average for the data

Year	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
Production	50	36.5	43	44.5	38.9	38.1	32.6	41.7	41.7	41.1	33.8

(8)

b) Calculate chain base index numbers.

Commodity	Price per unit in Rs.				Weights
	1970 = P0	1971 = P1	1972 = P2	1973 = P3	
A	10	12	13	15	25
B	15	18	20	21	40
C	12	13	15	16	35

(7)

Q.3. a) A newspaper dealer buys newspaper for Rs.2 each and sells them at Rs.3 each. Any papers not sold at the end of the day are completely worthless. The dealer has kept a record of his sales for the past 100 days which is given below. Find the number of copies he should stock so that the expected profit is maximum.

Daily Sales	300	400	500	600	700
No. of days	15	20	45	15	05
Pro. Of each no. being sold	0.15	0.20	0.45	0.15	0.05

b) Mr. Patel owns a resort. He has received an offer from a hotel chain to operate the resort for the tourist season, offering him an amount of Rs.2, 25,000 for the season. If he operates the resort himself his profits will depend upon whether the season is good he will make profits of Rs.4, 00,000. If it is medium, the profits will be Rs.2, 50,000 and for a slack season the profits will be 1, 50,000. The probability for the 3 is 0.4, 0.3 and 0.2 resply. Draw a decision tree and find whether he should run the resort himself or accepts the offer of the hotel chain, considering expected profits.

OR

Q.3.a) A housewife buys a dozen eggs of which 2 are bad. She chooses 4 eggs to scramble for breakfast. Find the probability that she chooses (i) all good eggs (ii) 3 good and 1 bad (iii) 2 good and 2 bad eggs.

b) Find Mean and Variance of x given the following probability distribution

X	-10	15	20	25	30
Probability	1/5	3/20	1/2	1/10	1/20

Q.4.a) What are the limitations of Statistics?

b) Following data relate to factory size according to employment

Employment size(number)	0-50	50-100	100-200	200-500	500-1000	1000-2000	2000-5000
No. of factories(in 100)	31	29	70	63	119	126	85

Draw a 'less than' curve and a 'more than' curve for the above data.

OR

Q.4.a) Write a note on Limitation of Index Number?

b) Represent the following data by histogram and frequency polygon

No. of units of electricity consumed	No. of consumers	No. of units of electricity consumed	No. of consumers
0-200	18	600-800	40
200-400	27	800-1000	36
400-600	32	1000-1200	15