

Basit C. J. 2021

JKXAGT

TIME : 2 Hrs.

MARKS : 60

Instructions :

- 1) All questions are compulsory.
- 2) Use of simple calculators is allowed.
- 3) Draw graphs only on separate graph paper.

Q.1 a) Draw Histogram (using pencil) on a graph paper and hence locate the mode. [5]

State the mode (using pen) on a graph paper.

Marks	No. of students
50 - 60	7
60 - 70	7
70 - 80	14
80 - 90	20
90 - 100	12
100 - 110	10

b) Find the missing frequency if arithmetic mean of the distribution is 9. [6]

Mobile Recharge	No. of customers
10 - 20	1
20 - 30	-
30 - 40	4
40 - 50	7
50 - 60	16

c) Fill in the blanks. [4]

- 1) Percentiles divide the data into _____ equal parts.
- 2) If variance of a data is 100 then S.D. is _____.
- 3) Mode of the distribution 10, 10, 11, 12, 12, 11, 12 is _____.
- 4) Value of Rank correlation coefficient always lies between -1 & _____.

OR

Q.1 a) Draw less than ogive and more than ogive on a graph paper and hence locate the median. State the median clearly on graph paper [5]

Salary (in '000 Rs.)	No. of Managers
50 - 60	15
60 - 70	25
70 - 80	36
80 - 90	14
90 - 100	10

- b) Following data represents the marks of 25 students in Maths & Physics respectively. Construct a bivariate frequency distribution by taking intervals 1 - 3, 3 - 5, for both the variables. Also answer the questions below. [6]

(1, 5) (9,9) (4, 6) (6, 7) (8, 9)

(4, 3) (10,8) (6, 7) (7, 8) (8, 8)

(3, 4) (8,10) (7, 8) (8 10) (7,7)

(2,2) (1, 2) (3,5) (10, 7) (6,5)

(3,2) (2,4) (5,6) (7,8) (5,1)

- i) How many students got marks between 3 -5 in Test I?
ii) How many students got marks between 1 -3 in Test II ?

- c) Define i) Median when n is even [4]
ii) Co-efficient of Quartile Deviation

- Q.2 a) Fill in the blanks. [6]

	Group I	Group II	Group I & II
Number	30	-	90
Average	-	30	40
Variance	4	4	-

- b) Find Rank correlation Co-efficient [5]

X : 98 99 97 94 95 96

Y : 81 87 86 85 83 84

- c) If following are regression equations [4]

of Y on X $5y = 4x + 15$

of X on Y $4x = 5y + 30$

then find x, y or r.

OR

- Q.2 a) Find the mean deviation from mode and also the coefficient of mean deviation for the following data. [6]

Marks	No. of students
10 - 20	11
20 - 30	13
30 - 40	12
40 - 50	5
50 - 60	9

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b) Find co-efficient of correlation (i.e. r) [5]

X : 10 11 14 15 18 19

Y : 9 6 13 10 17 14

c) Fill in the blanks : [4]

i) Formula $l_1 \frac{\frac{N}{2} - c}{f}$ ($l_2 - l_1$) is used in case of continuous

distribution to find _____

ii) A student applies short-cut method to find S. D. and gets $\sigma_u = 0.02$.

If length of each class -interval is 500 then $\sigma_x =$ _____ ?

iii) If $b_{xy} = 5$ and $r^2 = 0.1$ the $b_{yx} =$?

iv) Arithmetic mean of 3.1, 1.6, 7.2, 2.4, 4.3, 3.6, 4.8, 5 is _____

Q.3 a) What are the limitations of statistics ? [5]

b) What are the problems involved in the construction of index number ? [5]

c) Find I_L, I_F, I_P [5]

Commodity Price (1980) Quantity (1980) Price (1990) Quantity (1990)

Commodity	Price (1980)	Quantity (1980)	Price (1990)	Quantity (1990)
A	120	12	100	10
B	130	10	110	12
C	140	9	150	15
D	110	8	120	9

OR

Q.3 a) What are the merits of mean and median ? [5]

b) Write a note on types of index numbers Use in India. [5]

c) Following data gives the number of workers in a factory. Calculate 3 yearly moving averages and also plot the trend curve [5]

Year	No. of workers
1985	2400
1986	2500
1987	2490
1988	2430
1989	2550
1990	2500

Q.4 a) A card is drawn from a pack of 52 cards. Find the probability that [6]

- i) It is a face card
- ii) It is a red card
- iii) It is either a face card or a red card.

b) Find weighted price index number based on price relatives. [4]

Commodity	P_0	P_1	Weights
A	13	26	9
B	7	21	.8
C	10	30	4
D	15	30	6
E	5	20	2

c) Mr. Patel owns a resort. He has received an offer to operate the resort [5]

for tourist season for amount Rs. 2,25,000. If he operates the resort himself then his profits will depend upon whether season is good or medium. If season is good he will make a profit of Rs. 3,90,000. If it is medium then profits will be Rs. 3,00,000. The probabilities of occurrence of 2 seasons are 0.3 and 0.7 (good & medium respectively).

Draw a decision tree and find whether he should run the resort himself or accept an offer.

OR

Q.4 a) For the following probability distribution find k , $E(x)$ & $V(X)$. [6]

X :	1	2	3	4	5	6
P(X) :	K	0.1	0.2	0.3	0.2	.01

b) Find weighted price index number based on price relatives. [4]

Commodity	P_0	P_1	Weights
A	100	80	3
B	80	90	7
C	110	120	6
D	90	100	4
E	100	110	5

c) Explain the functions of statistics. [5]