

2111000103010002
BCA (Sem-III)
Examination July-2023
Statistical Methods

Seat No:

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[Time: Three Hours]

[Max. marks: 70]

Instructions: i) All questions are compulsory.
 ii) Use of non-scientific calculator is allowed.

Student's Signature

Q.1 Do as directed. (Any seven)**14**

1. Define the term mean.
2. Calculate median of the following observations: 5, 12, 4, 8, 11, 9, 6.
3. Define Geometric mean.
4. Regression equation given by $x + 8y = 14$, If $\bar{x} = 5$, then find \bar{y} .
5. Find range and coefficient of range for the data: 8, 6, 4, 3, 9, 7, 5, 2.
6. Explain: "If one regression coefficient is greater than 1 then another one is less than one".
7. If $r = -0.6$, $b_{xy} = -1.2$ then $b_{yx} =$ _____
8. Find mean deviation of the following data
12, 6, 7, 3, 15, 10, 18, 5
9. The square of correlation is lies between _____ and _____.
10. Quartile deviation is defined by _____.

Q.2 Attempt any Two.**14**

1. From the following data find the value of mode for the following table:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	3	7	22	9	9

2. Find Median for the following data

Age	0-20	20-40	40-60	60-80	80-100
No. of members	5	10	12	6	3

3. Find the missing frequencies of the following if mean is 50.

x	10	30	50	70	90	Total
Frequency	17	a	32	b	19	120

Q.3 Attempt any Two.

14

1. Find mean deviation for the following:

X	10	11	12	13	14
Frequency	3	12	18	12	3

2. Find coefficient of quartile deviation from the following.

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of workers	170	110	80	45	40	30	25

3. The sum of 10 observations is 80 and the sum of their squares is 800. Find the coefficient of variation of the observations.

Q.4 Attempt any Two.

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1. From the following data calculate correlation coefficient between sales and expenditure of 10 companies.

Sales	50	55	55	60	65	65	65	60	60	50
Expenditure	11	13	14	16	16	15	15	14	13	13

2. Find correlation coefficient using following data:

$$n = 10, \quad \sum x = 650, \quad \sum y = 660, \quad \sum (x - 65)^2 = 15398,$$

$$\sum (y - 66)^2 = 12224, \quad \sum (x - 65)(y - 66) = 12704$$

3. The coefficients of rank correlation of the marks obtained by 10 students in two particular subjects are found to be 0.5. It was later discovered that the difference in ranks in two subjects obtained by one student was wrongly taken as 6 instead of 9, what should be the correct value of coefficient of rank correlation?

Q.5 Attempt any Two.

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1. The following results are obtained from bivariate sample of 25 pairs

	x	Y
Average	25	40
Variance	9	36

If correlation coefficient is 0.8 then find regression lines. Also estimate value of y for x=29.

2. Calculate the two regression equations of X on Y and Y on X from the data given below, taking deviations from an actual means of X and Y.

Price	10	12	13	12	16	15
Demand	40	38	43	45	37	43

Estimate the likely demand when the price is Rs.20.

3. Define correlation coefficient and regression coefficients. State and prove relation regression coefficient and correlation coefficients.