

2111000103010002
B.C.A. S.Y (Sem – III)
Examination October-2023
Statistical Methods

Seat No:

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[Time: Three Hours]

[Max. Marks: 70]

Instructions: 1) All questions are compulsory
 2) Use of non-scientific calculator is allowed.

Student's Signature

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

1. Find mean deviation using median for the following data 13, 7, 7, 3, 15, 10, 7
2. Define the term median
3. Calculate mean of the following observations: 5, 12, 4, 8, 11.
4. If $n=10$ and $\sum d^2 = 126$ then find rank correlation coefficient. (r).
5. For the following data find median.

Marks	30	36	42	64	70
No. of students	4	12	16	10	8

6. Give the range of correlation coefficient.
7. State and prove relation between correlation coefficient and regression coefficients.
8. Find geometric mean and harmonic mean of four values 27, 72, 108 and 144.
9. If mean is 6 and mode is 5 then find the median.
10. If median mark of 9 students is 28 out of 50. Later on it found that all these 9 students have lose 2 marks then what is the new median?

Q.2 Attempt any two.**14**

1. From the following data find the value of mean , median and mode:

Marks	6	8	10	12	14	16	18	20
No. of students	11	26	27	32	31	12	15	7

2. Find Mode for the following data

Age less than	10	20	30	40	50	60
No. of members	3	5	10	14	20	22

3. Find the value of a and b if mean is 16.5.

Class	0-5	5-10	10-15	15-20	20-25	25-30	30-35	Total
Frequency	1	7	11	a	b	4	2	40

Q.3 Attempt any Two.**14**

1. Find standard deviation from the following table giving the age distribution of 540 members of a city club.

Age in years	30	40	50	60	70
No. of members	64	132	153	140	51

2. Find range, coefficient of range, quartile deviation and co efficient of Q.D from the following data.

Height in inches	58	59	60	61	62	63	64	65	66
No. of students	15	20	32	35	33	22	20	10	8

3. Calculate the mean deviation and coefficient of mean deviation from mode for the following data:

18, 25, 63, 59, 29, 72, 17, 25, 105, 87

Q.4 Attempt any two.**14**

1. The coefficients of rank correlation of the marks obtained by 7 students in two particular subjects are found to be 0.4. It was later discovered that the difference in ranks of two subjects obtained by one student was wrongly taken as 3 instead of 2, what should be the correct value of coefficient of rank correlation?
2. From the following data calculate Karl Pearson's correlation coefficient from the following data:

X	4	5	7	9	10	11	13
Y	8	9	10	10	11	15	20

3. Find correlation coefficient using following data:

$$n = 8, \quad \sum x = 232, \quad \sum y = 938, \quad \sum (x - 30)^2 = 1030,$$

$$\sum (y - 120)^2 = 5404, \quad \sum (x - 30)(y - 120) = 2339$$

Q.5 Attempt any two.**14**

1. Calculate the two regression equations of X on Y and Y on X from the data given below:

x	25	28	35	32	31	36	29
y	43	46	49	41	36	32	31

Estimate x when y=33.

2. The following results are obtained about the sales and advertisement expenditure of a firm:

	Sales in crores	Advertisement expenditure in crores
Average	40	6
Standard deviation	10	1.5

If correlation coefficient is 0.9 then find regression lines. Also estimate the likely sales for a proposed advertisement expenditure of Rs. 10 crores.

3. Define correlation coefficient and regression coefficients. State interpretation of correlation coefficient value and relation between two variables.