RAN-19110001030100001

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S. Y. B. C. A. (Semester - III) Examination

January - 2021

Statistical Methods : Paper 301

Time: 3 Hours] **[Total Marks: 70**

સૂચના : / Instructions

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of ☛ signs on your answer book

Name of the Examination:

☛ **S. Y. B. C. A. (Semester - III)**

Name of the Subject :

☛ **Statistical Methods : Paper 301**

Subject Code No.: **1911000103010001**

Seat No.:

Student's Signature

(2) All questions are compulsory.

(3) Figures to the right indicate marks of corresponding question.

(4) Follow usual notations.

(5) Use of non-programmable scientific calculator is allowed.

Q 1] **Do as directed: (Any seven)** **[14]**

1. Find the mode of the following numbers: 3, 5, 2, 6, 5, 9, 5, 8, 6.
2. It $\overline{X} - M = 3$ and $Z = 2$ then find mean.
3. Calculate mean deviation of 5, 8, 6, 4, 10.
4. If $b_{yx} = -0.8$, $b_{xy} = -0.5$ then $r = -0.6$. Is it true or false?
5. If two variables have perfect relationship then one regression coefficient is _____ of the other regression coefficient.
6. Define: Variance.
7. Calculate Median of 10, 15, 14 and 20.

8. State the formula for Quartile deviation and Coefficient of Quartile deviation.

9. State any two properties of correlation co-efficient.

10. If covariance between two variables X and Y is 20.25 and standard deviation of X and Y are 5 and 4.5 respectively then find correlation coefficient.

Q 2] Attempt any two: **[14]**

1) Calculate the mean and median of the frequency distribution given below. Hence calculate the mode using the empirical relation between the three:

Height (in cms)	130-134	135-139	140-144	145-149	150-154	155-159	160-164
No. of students	5	15	28	24	17	10	1

2) Given the following frequency distribution with some missing frequencies. If total frequency is 685 and median is 42.6, find the missing frequencies.

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	185	–	34	180	136	–	50

3) Calculate Q_1 and Q_3 of the following data:

Class	0-10	10-20	20-30	30-40	40-50
Frequency	6	25	36	20	13

Q 3] Attempt any two: **[14]**

1) Find the Standard Deviation and coefficient of variation from the following data:

Class	20-25	25-30	30-35	35-40	40-45	45-50
Frequency	170	110	80	45	40	35

2) Find range and standard deviation from the following data:

Class	0-10	10-20	20-30	30-40	40-50
Frequency	6	25	36	20	13

3) Find the mean deviation from the following data:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	6	5	8	15	7	6	5

Q 4] Attempt any two: **[14]**

1) Calculate correlation co-efficient for the following data:

x	23	27	28	29	30	31	33	35	36	39
y	18	22	23	24	25	26	28	29	30	32

2) Calculate Correlation Co-efficient:

X	100	101	102	102	100	99	97	98	96	95
Y	98	99	99	97	95	92	95	94	90	91

3) The coefficient of the rank correlation of the marks obtained by 10 students in Statistics and Accountancy was found to be 0.8. It was later discovered that the difference in ranks in the two subjects obtained by one of the students was wrongly taken as 7 instead of 9. Find the correct coefficient of rank correlation.

Q 5] Attempt any two: **[14]**

1) The following data relate to advertising expenditure (in lakhs of rupees) and their corresponding sales (in crores of rupees):

Advertising Expenditure	10	12	15	23	20
Sales	14	17	23	25	21

Estimate

(a) the sales corresponding to advertising expenditure of Rs. 30 lakhs.

(b) the advertising expenditure for a sales target of Rs. 35 crores.

2) For certain x and y series, two regression lines are $5x - 6y + 90 = 0$, $15x - 8y - 130 = 0$ and $\sigma_x = 5$, find (a) Mean value of x and y

(b) Correlation coefficient (c) Standard deviation of y.

3) You are given below the following information about advertisement expenditure and sales.

	Adv. Exp, (x) (in lakhs)	Sales (y) (in lakhs)
Mean	10	90
S. D.	3	12

Given that Correlation Coefficient = 0.8 then compute the two regression lines.

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