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RAN-3536

S.Y.B.C.A. Semester III Examination

March / April - 2019

301 : Statistical Methods

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 :

☛ **301: Statistical Methods**

Subject Code No.: **3 5 3 6**

Seat No.:

Student's Signature

(2) All questions are compulsory.

(3) Figures to the right indicate full marks.

(4) Mention your options clearly.

(5) Use of scientific calculator is permitted.

Q-l Do as directed: (Any seven) **14**

1. Define term median.
2. Calculate mode of the following observations:
   5, 12, 4, 8,11, 9, 6
3. Explain weighted mean.
4. The measure of how well the regression line fits the data is called _____
5. A regression equation given by $x + 8y = 14$, if $\bar{x} = 5$ then find $\bar{y}$.
6. Find the range and coefficient of range for the following data.
   8, 6, 4, 3, 9, 7, 5, 2
7. What is correlation coefficient?
8. If $r = 0.6$, $b_{yx} = 1.2$ then b_{xy} = ?

9. Find the standard deviation for the following data series:
12, 6, 7, 3, 15, 10, 18, 5

10. The regression equation of y and x is $y = 28 + 1.2$ X, if $S_{xy} = 30$ find standard deviation.

Q-2 Attempt any two **14**

(A) Find the median and Q1 for the following data.

Marks	0-10	10-30	30-50	50-80	80-90	90-100
No. of students	4	12	20	8	4	2

(B) The following data represents income distribution of 100 families; calculate mean income of 100 families.

Income in '00 Rs	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of families	8	12	25	22	16	11	6

(C) In an inquiry of 50 firms dealing with cloth business, the data of profit during the year 2017-18 is shown in the following table. Find the mode of profit.

Profit (In Lakh Rs)	4	5	6	7	8	9
No. of firms	8	15	12	7	5	3

Q-3 Attempt any two **14**

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

(B) The information of profit (in lakh Rs.) of 50 firms in the last year is given below. Find the standard deviation of the profit of the firm.

Profit (lakh Rs.)	0-10	10-20	20-30	30-40	40-50
No. of firms	7	6	15	12	10

(C) The information of marks obtained by 220 students of a college is given below. Find the quartile deviation of the marks obtained by the students.

Marks	0-9	10-19	20-29	30-39	40-49	50 or more
No. of students	30	50	64	42	29	5

Q-4 Attempt any two **14**

(A) From the following data calculate correlation coefficient between number of mobile phone sold and profit.

No. of mobile sold (in thousand units)	3	8	12	5	7	5
Profit (in lakh Rs.)	6	10	15	10	9	8

(B) Find Karl Pearson's coefficient of correlation from the following data. Assume 60 and 65 as working means of X and Y respectively.

X	45	70	65	30	90	40	50	75	85	60
Y	35	90	70	40	95	40	60	80	80	50

(C) 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 3 instead of 7, what should be the correct value of coefficient of rank correlation?

Q- 5 Attempt any two **14**

(A) Obtained equation of regression line y on x using data given below:

Month	1	2	3	4	5	6
No. of laptop sold (in hundred) X	5	7	5	12	8	3
Profit (lakh Rs) Y	8	9	10	15	10	6

(B) Obtain regression line of y on x using the following data
$N = 6$, $\Sigma x = 45$, $\Sigma y = 122$, $\Sigma x^2 = 439$, $\Sigma xy = 605$

(C) The line of regression of a bivariate population are

$8x - 10y + 66 = 0$

$40x - 18y = 214$

The variance of x is 9.

Find the mean value of x and y. Also calculate correlation coefficient between x and y.

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