RC-3735

Second Year B. C. A. (Sem. III) Examination March / April - 2017

301: Statistical Methods

Time: 3 Hours [Total Marks: 70 Instructions: (1) Seat No.: નીચે દર્શાવેલ 🚁 નિશાનીવાળી વિગતો ઉત્તરવતી પર અવશ્ય લખવી. Fillup strictly the details of - signs on your answer book. Name of the Examination: SECOND YEAR B. C. A. (SEM. 3) Name of the Subject 301 : STATISTICAL METHODS Student's Signature Nii Section No. (1, 2,....): -Subject Code No (2)Attempt all questions. Figures to right indicate full marks. (3)Mention your options clearly. (4)Use of calculator is permitted. (5)Do as directed: (any seven) 1 14 (1) Explain univariate and bivariate frequency distribution. (2) Find the Arithmetic mean of 13, 16, 24, 48. (3) Calculate median of the following observations: 7, 4, 10, 9, 15, 12 (4) Find the range and coefficient of range of the data 3, 7, 5, 6, 2, 8, 1. (5) Define regression. (6) Find the variance for the following data: 4, 6, 10, 12, 18. Value of correlation coefficient of two variables lies between and If regression lines are perpendicular to each other then What is co-relation of coefficient? (9) (10) The regression equation of y and x is y = 28 + 1.2 x.

RC-37351

if $S_{\perp} = 30$ find standard deviation.

(1) Following is the cumulative frequency distribution of the preferred length of kitchen slabs obtained from the preference study on housewives:

Length (in meters) More than	1,0	1.5	2.0	2.5	3.0	3.5
Preference of housewives	50	48	42	40	10	5

A builder has to take a decision on what length of slab to build. What length you would recommend and why? Calculate mean length of slab.

(2) The intelligence of 510 pre-university students of a colleges is as follows:

LQ.	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
No. of students	41	\$2	61	190	67	45	40	14

Find median

(3) Given below is the distribution of profits (in '000 rupees) earned by 94% of the retail grocery shops in a city.

Profits	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No of Shops	0	5	14	27	48	68	83	91	94

Calculate the model value.

3 Attempt any two:

14

(1) The cholera cases reported in different hospitals of a city in a rainy season are given below:

Age Group (Years)	Less than	1-5	5-10	10-15	15-25	25-35	35-45	45-65	65 and above
Frequency	15	113	122	91	229	132	65	46	(5)

Calculate the quartile deviation for the given distribution.

(2) Find the mean deviation of the following series

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

(3) The following data relate to the age of a group of workers. Calculate the arithmetic mean and standard deviation. Also calculate coefficient of variation.

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

4 Attempt any two:

14

(1) Calculate correlation coefficient for the following data and also calculate coefficient of determination:

X	8	7	6	1	2	3	9	4	5
yλ	16	14	13	9	8	10	15	12	11

(2) Calculate correlation coefficient using following data:

$$n = 10,$$
 $\Sigma X = 650,$ $\Sigma y = 660,$ $\Sigma (x-65)^2 = 15398,$ $\Sigma (y-66)^2 = 12224,$ $\Sigma (x-65)(y-66) = 12704$

Attempt any two:

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No. of Shops	0	5	14	27	48	68	83	91	94

Calculate the model value.

(3) Find the rank correlation coefficient of the following data:

Marks in statistics	84	51	91	60	68	62	86	58	53	47
Marks in Accountancy	78	36	98	25	75	82	90	62	65	39

Calculate the Spearman's correlation coefficient.

- 5 Attempt any two:
 - (1) Obtain equations of regression line of y on x and x on y, using the data given below:

	X	1	2	3	4	10	-3	-1	9
İ	y	10	8	6	4	0	4	5	-1

- (2) Given the following data: Calculate
 - (i) The probable value of y when x = 12
 - (ii) The probable value of x when y = 30.

	X	y	\bigcirc
Mean	27.6	148	
S.D.	40	20	y $r = 0.8$

(3) Obtain the regression line of y on x using the following data:

$$\sum x = 21$$
, $\sum y = 20$, $\sum x^2 = 91$, $\sum xy = 74$, $y = 74$