



**DF-3735**  
**Second Year B. C. A. (Sem. III) Examination**  
**March / April - 2016**  
**301 - Statistical Methods**  
**(New Course)**

Time : 3 Hours]

[Total Marks : 70

**Instructions :**

(1)

नीचे दशांशविक लिखनीवाणी विगतो उत्तरवडी पर अवश्य लिखनी.  
Fillup strictly the details of signs on your answer book.

Name of the Examination :  
**SECOND YEAR B. C. A. (SEM. III)**

Name of the Subject :  
**301 - STATISTICAL METHODS (NEW)**

Subject Code No. : **3 7 3 5** Section No. (1, 2,.....) : **Nil**

Seat No. :

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Student's Signature

- (2) Attempt all questions.
- (3) Figures to right indicate full marks.
- (4) Mention your options clearly.
- (5) Use of calculator is permitted.

1 Do as directed : (Any Seven) 14

- (1) A regression equation given by  $X + 5Y = 10$ , if  $X = 5$  then find  $y$ .
- (2)  $b_{yx} = 1.17, S_x^2 : S_y^2 = 9 : 81$  find  $r$  and  $b_{xy}$ .
- (3) Compute the mean from the following data :  
15, 18, 26, 30, 80, 86, 85
- (4) Define : Standard deviation.
- (5) If  $n = 10, \sum x = 60, \sum x^2 = 1000$ , then find standard deviation.

- (6) Value of correlation coefficient of two variables lies between \_\_\_\_\_ and \_\_\_\_\_.
- (7) Find Geometric mean of 3, 6, 24 and 48.
- (8) Find the range and coefficient of range of the data 3, 7, 2, 5, 8, 1.
- (9) Find the variance of the following data :  
8, 9, 12, 18, 15.
- (10) What is meant by "Correlation" ? Distinguish between positive, negative and zero correlation.

2 Attempt any two :

14

- (1) Find the mode of the following data :

<i>Class</i>	93-97	98-102	103-107	108-112	113-117	118-122	123-127	128-132
<i>Frequency</i>	2	5	12	17	14	6	3	1

- (2) Calculate Quartile deviation and coefficient of Quartile deviation :

<i>Class</i>	17-19.5	20-25.5	26-35.5	36-40.5	41-50.5	51-55.5	56-60.5	61-70.5
<i>Frequency</i>	9	16	12	26	14	12	6	5

- (3) Mean of the following frequency distribution is 18.1. Find the missing frequency.

<i>Class</i>	5-10	10-15	15-20	20-25	25-30	30-35
<i>Frequency</i>	11	20	35	20	?	6

3 Attempt any two :

14

- (1) Find combined standard deviation of following data :

<i>No. of observation</i>	<i>Group A</i>	<i>Group B</i>
	20	10
<i>Mean</i>	22	16
<i>SD</i>	$\sqrt{6}$	$\sqrt{2}$

- (2) Find mean, standard deviation, coefficient of standard deviation and coefficient of variation for the following data :

$X_i$	1	2	3	4	5	6	7	8	9
$F_i$	92	49	52	82	102	60	35	24	4

- (3) For a group of 200 candidates the mean and the standard deviation was found to be 40 and 15 respectively. Later on it was found that the score 43 was misread as 34. Find the correct mean and standard deviation.

4 Attempt any two :

14

- (1) The following table gives indices of industrial production and number of registered unemployed people (in lakh). Calculate the value of the correlation coefficient.

<i>Year</i>	2005	2006	2007	2008	2009	2010	2011	2012
<i>Production</i>	100	102	104	107	105	112	103	99
<i>No. of unemployed</i>	15	12	13	11	12	12	19	26

- (2) Eight competitors were ranked in a beauty contest by 3 judges as follows. Use rank correlation coefficient to determine which of the two judges have similar approach to common tastes and liking for beauty.

<i>Judge X :</i>	2	4	3	8	1	5	7	6
<i>Judge Y :</i>	5	3	2	7	1	8	6	4
<i>Judge Z :</i>	3	1	5	4	2	6	8	7

- (3) For 10 pairs of observations on  $(X, Y)$  we get  $\bar{X} = 12, \bar{Y} = 15, S_x = 3, S_y = 4, r = 0.5$  are obtained. Later on, it was noticed that one of the pairs was wrongly taken as (16, 18) instead of (15, 13). Find the correct value of correlation coefficient.



5 Attempt any two : 14

(1) Obtain equations of regression line of Y on X and X on Y, using the data give below :

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

(2) Information about advertisement and sales of some consumer product given below :

	Adv. expenditure (X) (Rs.Crores)	Sales (Y) (Rs.Crores)
Mean	20	120
S.D.	5	25

Co-relation coefficient = 0.8

Compute the two regression lines.

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

$$n = 5, \sum x = 30, \sum y = 40, \sum x^2 = 220, \sum xy = 214$$