



**EN-3735**  
**Second Year B. C. A. (Sem. III) Examination**  
**October / November - 2016**  
**301 : Statistical Methods**

Time : 3 Hours]

[Total Marks : 70

**Instructions : (1)**

<p>नीचे दशांशों के निशानीवाणी विगतों उत्तरपत्री पर अवश्य लिखनी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : <b>SECOND YEAR B. C. A. (SEM. 3)</b></p> <p>Name of the Subject : <b>301 : STATISTICAL METHODS</b></p> <p>Subject Code No. : <b>3 7 3 5</b> Section No. (1, 2,.....) : <b>Nil</b></p>	<p>Seat No. :</p> <table border="1" style="width: 100%; height: 30px; border-collapse: collapse;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> <div style="border: 1px solid black; border-radius: 15px; height: 80px; margin-top: 10px; display: flex; align-items: center; justify-content: center; text-align: center;">Student's Signature</div>						

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

1 Do as directed : (any seven)

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- (1) Explain Quantitative variables.
- (2) The weekly wages in rupees of 5 labourers are 240, 260, 236, 225, 230. Calculate their Arithmetic Mean.
- (3) Find Median of the following observations :  
10, 15, 14, 20
- (4) Find the range and coefficient of range of weights of 6 students with weights 45 kg, 46 kg, 50 kg, 48 kg, 55 kg, 46 kg.
- (5) Define Standard deviation.
- (6) Find the variance of the following data :  
8, 9, 12, 18, 15
- (7) If the ranks of two variables are equal then co-relation coefficient  $r =$  \_\_\_\_\_.
- (8) The two regression lines intersect each other at the point (\_\_\_\_\_, \_\_\_\_\_).

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[Contd...

(9) What is variance ?

(10) If  $\bar{X} = 169$  C.M.,  $\bar{Y} = 67$  k.g.  $S_x = 20$ ,  $S_y = 3$ ,  $r = 0.5$ , find regression line of X on Y.

2 Attempt any two :

(1) Find mean of the following data :

Class interval	50-59	40-49	30-39	20-29	10-19	0-9
Frequency	1	3	8	10	15	3

(2) Calculate the median for the data given below :

Daily earnings (in Rs.)	50-53	53-56	56-59	59-62	62-65	65-68	68-71	71-74	74-77
No. of Persons	3	8	14	30	36	28	16	10	5

(3) Compute mode value from the following data relating to dividend paid by companies in a particular financial year.

Dividend (in percent value)	5.0 - 7.5	7.5 - 10.0	10.0 - 12.5	12.5 - 15.0	15.0 - 17.5	17.5 - 20.0	20.0 - 22.5	22.5 - 25.0
No. of companies (in percent)	182	75	59	127	280	236	378	331

3 Attempt any two :

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(1) You are given the frequency distribution of 292 workers of a factory according to their average weekly income :

Weekly Income (in Rs.)	Below 1350	1350-1370	1370-1390	1390-1410	1410-1430	1430-1450	1450-1470	1470-1490	1490-1510	1510-1530	1530 and Above
No. of Workers	8	16	39	58	60	40	22	15	15	9	10

Calculate the quartile deviation and its coefficient from the above mentioned data.

- (2) Find out coefficient of mean deviation about mean ( $\bar{X}$ ) from the following data :

Class	0-3	3-6	6-9	9-12	12-15	15-18	18-21
Frequency	2	7	10	12	9	6	4

- (3) The frequency distribution of the net profit (lakh rupees) of 30 industries during the year 2015-16 is as follows. Find the coefficient of variation :

New Profit (lakh Rs.)	50-99	100-149	150-199	200-249	250-299	300-349	350-399
No. of Industries	7	9	4	4	2	2	2

4 Attempt any two :

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- (1) Calculate correlation coefficient from the following data :

X	73	74	76	70	74	72	75	72	78	72	87
Y	79	81	69	68	69	77	79	91	80	76	60

- (2) In two sets of values of variables  $X$  and  $Y$  with 50 observations each, the following information is available :

$\Sigma X = 490$ ,  $\Sigma Y = 294$ , standard deviation of

$X = 21.21$ , variance of  $Y = 200$ ,  $\Sigma XY = 3030$ .

Find  $r(X, Y)$

- (3) Find the rank correlation coefficient from the following data :

Marks in Statistics	22	27	28	15	32	14	17	09	05	06
Marks in Mathematics	32	39	40	20	21	22	16	35	48	16

5 Attempt any two :

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- (1) Obtain the regression line of blood pressure on Age in year and estimate the blood pressure when the age is 50.

Age	56	42	72	36	63	47	60	68	42	38	49	55
B.P.	147	125	160	118	149	128	155	152	140	111	145	150

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

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

Correlation coefficient = 0.8

- (i) Calculate two regression lines  
(ii) Find the likely sales when advertisement expenditure is Rs. 25 crores.
- (3) Obtain the equation of the two lines of regressions for the data given below :

$$\Sigma(X - \bar{X})^2 = 60, \Sigma(Y - \bar{Y})^2 = 60,$$
$$\Sigma(X - \bar{X})(Y - \bar{Y}) = 57.$$