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SUBJECT : PAPER-301 : STATISTICAL METHODS

SECOND YEAR B.C.A. (SEM. III) EXAMINATION

This pdf file contains 2013 to 2019 Years question Papers list of above subject. The question Bank will be upload in future for the students

1. Mar/ Apr – 2013

2. . Mar/ Apr – 2014

3. Mar/ Apr –2015

4. Mar / Apr – 2016

5. Nov/Dec – 2014

6. Oct / Nov – 2019

For Further information Follow the below links.

Second Year B.C.A. (Sem. III) Examination

March/April - 2013

301 : Statistical Methods(New Course)

[Time: 3 Hours]

Instructions

(1)

Fill up strictly the details of signs on your answer book

Name of the Examination:

☐ **Second Year B.C.A. (Sem. III)**

Name of the Subject :

☐ **Statistical Methods: Paper 301**

Subject Code No.: | 3 | 7 | 3 | 5 |

Seat No.:

Student's Signature

(2)   Give appropriate example when require

(3)   Do not change options.

Q.1. Do as directed   **10**

(i)   The number of presence of 8 workers of a factory during a month is 20, 22, 18, 25, 15, 20, 18 and 23 days. Find the mean and median.

(ii)   What is standard deviation of 8, 8, 8, 8, 8 and 8 ?

(iii)   Explain standard deviation.

(iv)   The geometric mean of two regression coefficient b_{yx} and b_{xy}= _____.

(v)   If mean = 2.7 and Median = 3 then find the value of mode.

(vi)   Give two merits of correlation.

1

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(vii) Define Correlation.

(viii) Show that coefficient of correlation r is the geometric mean of bxy and byx.

(ix) A regression equation given by x + 5y = 10. If x = 5 then find y.

(x) The lines of regression interest at which point.

Q.2. **Answer the following questions: (any two)** **12**

(i) Define mean and calculate median of the following frequency distribution:

Time (in minutes)	10-15	15-20	20-25	25-30	30-35	35-40	40-45
No. of workers	8	14	18	25	15	14	6

(ii) Define mode and calculate mode from given data below :

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	9	12	14	7	8

(iii) Define mean and find the value of mean from the following.

Weight (kg)	60	61	62	63	64	65
No. of Workers	5	8	14	16	10	7

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Q.3. **Answer the following questions: (any two)**   **12**

(i)   Calculate mean deviation from mean for the following data

Class	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
fi	3	5	10	20	12	6	3	1

(ii)   The following data refer to the dividend (%) paid by two companies A and B cover the last seven years. Calculate the coefficient of variation and comment.

A	4	8	4	15	10	11	9
B	12	8	3	15	6	4	10

(iii)   An analysis of daily wages of workers of two organizations A and B yielded the following results.

	Organization	
	A	B
Number of Workers	10	20
Average daily wages	Rs. 30	Rs. 15
Variance	25	100

Obtain the average daily wage and s.d. of wages of all the workers in two organizations taken together which organization is more equitable in regard to wages.

Q.4. Answer the following questions: (any two)   **12**

(i)   Calculate the standard deviation

Age less than	10	20	30	40	50	60	70	80
No. of year	15	30	53	75	100	110	115	125

(ii)   The sales and expenditure of 10 companies are given below. Find coefficient of correlation between sales and expenditure.

Sales	50	55	55	60	65	65	65	60	60	50
Expenditure	11	13	14	16	16	15	15	14	13	13

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(iii) Find the equations of regression lines from the following data:

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

Q.5. Answer the following questions : (any two)   12

(i)   Ten years data on price and sales of a commodity was observed as below. Find the coefficient of correlation between these two.

Price	55	57	90	62	64	67	69	72	74	77
LSales	50	55	54	58	62	65	70	57	60	65

(ii)   Two persons were asked to watch ten specified TV programmes and offer their evaluation by rating them 1 to 10. These ratings are given below: Calculate Spearman's Coefficient of correlation.

TV Programme	A	B	C	D	E	F	G	H	I	J
X	4	6	3	9	1	5	2	7	10	8
Y	2	3	4	9	5	7	1	10	8	6

(iii)   From the table given below calculate the coefficient of correlation between the ages of husbands and wives.

Age of Wifes Y -Series	Age of Husband X – Series					
	20-30	30-40	40-50	50-60	60-70	Total
15-25	5	9	3	-	-	17
25-35	-	10	25	2	-	37
35-45	-	1	12	2	-	15
45-55	-	-	4	16	5	25
55-65	-	-	-	4	2	6
Total	5	20	44	24	7	100

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Q.6.   Answer the following questions: (any two)   12

(i)   The following results are obtained from bivariate sample of 25 pairs.

	x	y
Average	25	40
Variance	9	36

Correlation of coefficient = 0.80

  a.   Find two regression lines

  b.   Estimate value of y for x = 29 and x for y = 45.

(ii)   Obtain the regression equation of x and y and y and x for the paired data given below. Also compute the coefficient correlation:

Market Price of X	26	28	30	31	35
Market Price of Y	20	27	28	30	25

(iii)   The equations of regression lines of y on x and x on y are respectively as follows :

2x - 5y + 40 = 0, 10x — 9y = 120

(a) Obtained the means of x and y

(b) Estimate x when y =   40

(c) Estimate   y when x = 60

(d) Obtain correlation coefficient between x and y.

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Second Year B.C.A. (Sem. III) Examination

March/April - 2014

301 : Statistical Methods

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

Seat No.:

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Name of the Examination:
☐ **Second Year B.C.A. (Sem. III)**

Name of the Subject :
☐ **Statistical Methods: Paper 301**

Subject Code No.: | 3 | 7 | 3 | 5 |

Student's Signature

(2) Give appropriate example when require

(3) Do not change options.

(4) Mention your options clearly.

Q1   Do as directed   14

1) Define mode.

2) Calculate a mean for the following data

 47, 53, 52, 59, 72, 83, 92, 94, 98, 99

3) A regression equation given by X+5y=10, If X=5 then find y.

4) Interpret the value of correlation coefficient

 (i)   0.65

 (ii)   -0.52

5) If $\sum d^2 = 0$ then value of correlation coefficient is _____.

6) If the ranks of two variables are equal then correlation coefficient

 r = _____.

7) If two values are perfectly correlated and one regression coefficient is 0.5.
 Find another regression coefficient.

8) If b_{yx} = 0.52 and b_{xy} = 2.5. Is it true?

9) The value of correlation coefficient is between _____ and
 _____.

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10) The standard deviation of a set of 50 observations is 8. If each observation is multiplied by 2, then the new value of deviation is _____.

11) In rank correlation if $\Sigma d^2 = 0$, r = _____.

12) The signs of correlation and regression coefficient are same.
True / False.

13) If $\overline{X}$ = 169, C.M, $\overline{Y}$ = 67k.g, S_x = 20, S_y = 3, r = 0.5.
Find regression line of X on Y.

14) What is the standard deviation of 8, 8, 8, 8 and 8?

Q.2. Attempt any two.   **14**

(a) Following is the frequency distribution of the preferred length of Kitchen slabs obtained from the preference study on housewives :

Length (in meters)	1.0	1.5	2.0	2.5	3.0	3.5
Preference Housewives	50	48	42	40	10	5

A manufacturer has to take a decision on what length of slabs of Kitchen must be? What length would you recommend and why?

(b) The pass result of 50 students who took a class test is given below.

Marks:	40	50	60	70	80	90
No. of Students	8	10	9	6	4	3

If the mean marks for all the students were 91.6, find out the mean marks of student who failed.

(c) The length of time taken by each of 18 workers to complete a specific job was observed to be the following.

Time(in min)	5-9	10-14	15-19	20-24	25-29
No. of workers	3	8	4	2	1

Calculate the median time.

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Q.3.   Attempt any two.   14

(a) The mean and S.D. of sample of 100 observations were calculated as 40 and 5.1 respectively by a student who took by mistake 50 instead of 40 for one observation. Calculate the correct mean and standard deviation.

(b) Following figures give the production of non-fatty dry milk during the 12 months of 2012.

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Production (million lbs)	83.5	81.6	95.8	111.5	131.4	126.5	98.7	76.2	53.2	50.3	49.6	67.1

Calculate coefficient of Variation.

(c) A group of 100 selected students average 163.8 cm in height with the coefficient of variation of 3.2%, what was the S.D. of their heights.

Q.4.   Attempt any two.   14

(a) The following table gives the distribution of items of production and also the relatively defective items among them, according to size groups. Find the correlation coefficient between size and defect in quality :

Size group :	15 — 16	16 — 17	17 — 18	18 — 19	19—20	20—21
No. of items	200	270	340	360	400	300
No. of defective Items	150	162	170	180	180	114

(b) Calculate the correlation coefficient from the following bivariate frequency distribution.

Sales Revenue (Rs. In Lakh)	Advertising Expenditure (Rs. In 10000)				Total
	5-10	10-15	15-20	20-25	
75-125	4	1	-	-	5
125-175	7	6	2	1	16
175-225	1	3	4	2	10
225-275	1	1	3	4	9
Total	13	11	9	7	40

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(c) An examination of eight applicants for a clerical post was taken by a firm. From the marks obtained by the applicants in the accounting and statistics paper, compute the rank correlation coefficient.

Applicant	A	B	C	D	E	F	G	H
Marks in Accountancy	15	20	28	12	40	60	20	80
Marks in Statistics	40	30	50	30	20	10	30	60

Q.5. **Attempt any two.** **14**

(a) A company is introducing a job evaluation scheme in which all jobs are graded by points for skill, responsibility and SO on. Monthly pay scales (Rs in 1000's) are then drawn up according to the no. of points allocated and other factors such as experience and local conditions: To date the company has applied this scheme to 9 jobs.

Job	A	B	C	D	E	F	G	H	I
Points	5	25	7	19	10	12	15	28	16
Pay(Rs.)	3.0	5.0	3.25	6.5	5.5	5.6	6.0	7.2	6.1

(i) Find the least squares regression line for linking pay scales to points.

(ii) Estimate the monthly pay for a job graded by 20 points.

(b) Coefficient of rank correlation between X and Y obtained as —0.05 and the sum of the squares of the difference in ranks is 126. Find the no of observation.

(c) For bivariate data following information is given

$\overline{X}$= 7, $\overline{Y}$= 21.25, n = 4, Σ(X-7)^2 , Σ(Y-20)^2 =225, Σ(X-7)(Y-20)=60
Find regression line of Y on X.

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Second Year B. C. A. (Sem. III) (CBCS) Examination

March / April — 2015

301 : Statistical Methods

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

Seat No.:

Fill up strictly the details of signs on your answer book

Name of the Examination:
☐ **Second Year B.C.A. (Sem. III)**

Name of the Subject :
☐ **Statistical Methods: Paper 301**

Subject Code No.: | 3 | 7 | 3 | 5 |

Student's Signature

(2)　Give appropriate example when require

(3)　Do not change options.

(4)　Mention your options clearly.

Q.1.　Do as directed: (any seven)　　　　　　　　　　　　　**14**

(1)　Compute the mean from the following data :

68, 61, 60, 66, 65, 66, 63

(2)　If two variables are having ranks in reverse order, write the value of r.

(3)　If byx = 0.52 and bxy = 2.5. Is it true?

(4)　If the ranks of two variables are equal then correlation coefficient r=____.

(5)　A regression   equation given by   2x + 4y = 18, If y = 2 then find x.

(6)　If cov(x, y) = 8 and σ_x = -2 and σ_y = 6 then find the correlation coefficient between x and y.

(7)　What is meant by "correlation"? Distinguish between positive, negative and zero correlation.

(8)　What is variance?

(9)　If the mean = 80, mode = 30.5 and c.v. = 63 then median = _____?

(10)　What is the measure of central tendency?

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Q.2. Attempt any two : 14

(a) In an examination of 675 candidates, the examines supplied the following information :

Marks obtained (percentage)	No. of Candidate
Less than 10	7
Less than 20	39
Less than 30	95
Less than 40	201
Less than 50	381
Less than 60	545
Less than 70	631
Less than 80	675

Calculate the mean percentage of marks obtained.

(b) The length of time taken by each of 18 workers to complete a specific job was observed to be the following :

Time (in min.)	5-9	10-14	**15-19**	20-24	25-29
No. of workers	3	8	4	2	1

Calculate a median time.

(c) Calculate the simple mean price per tonne of coal purchased by a company for the half year account for different between the two

Month	Jan	Feb	Mar	April	May	June
Price/tone	4205	5125	5000	5200	4425	5400
Tones purchased	25	30	40	52	10	45

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Q.3. Attempt any two :   **14**

(a) The petrol filling station has recorded the following data for liters of petrol sold per automobile in a sample of 680 automobiles.

Petrol sold (liters)	0-4	5-9	10- 14	15- 19	20-24	25-29
Frequency	74	192	280	105	23	6

Compute the mean and standard deviation for the data.

(b) The mean and the standard deviation of a sample of 10 sizes were found to be 9.5 and 2.5 respectively, lates on, an additional observation become available. This was 15.0 and was included in the original sample. Find the mean and standard deviation of 11 observations.

(c) The number of employees, average daily wages per employee and the variance of daily wages per employee for two factories age given below

	Factory A	Factory B
Number of employees	50	100
Average daily wages (Rs.)	120	85
Variance of daily wage (Rs.)	9	16

In which factory is these grates variation in the distribution of daily wages per employee?

Q.4. Attempt any two: **14**

(a) In an office some keyboard operators, who were already ranked on their speed, were also ranked on accuracy by their supervisor. The result were as follows

Operators:	A	B	C	D	E	F	G	H	I	J
Speed:	1	2	3	4	5	6	7	8	9	10
Accuracy:	7	9	3	4	1	6	8	2	10	5

Calculate the appropriate correlation coefficient between speed and accuracy.

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(b) Find the co-efficient of correlation between age and the sum assured (in 1000 Rs.) from the following table

Age Group (years)	Sum Assured (Rs.)				
	10	20	30	40	50
20-30	4	6	3	7	1
30-40	2	8	15	7	1
40-50	3	9	12	6	2
50-60	8	4	2	-	-

(c) Calculate the co-efficient of correlation from the following data

x :	100	200	300	400	500	600	700
y :	30	50	60	80	100	110	130

Q.5. Attempt any two: 14

(a) The following calculations have been made for prices of twelve stocks (x) at the Calcutta Stock Exchange. On a certain day along with the volume of sales in thousands of shares(y). From these calculations, find the regression equation of price of stocks on the volume of sales of shares.

$\Sigma x = 580$, $\Sigma y = 370$, $\Sigma xy = 11494$, $\Sigma x2 = 41658$, $\Sigma y2 = 17206$

(b) The following data give the experience of machine operators and their performance ratings given by the number of good parts turned out per 100 pieces

Operators:	1	2	3	4	5	6	7	8
Experience(x):	16	12	18	4	3	10	5	12
Performance(y):	87	88	89	68	78	80	75	83

Calculate the regression lines of performance ratings on experience and estimate the probable performance if an operator has 7 years experience.

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

	Adv. Exp. (x) (Rs. in core)	Sales(y) (Rs. in core)
Mean	20	120
S.D.	5	25

Correlation coefficient 0.8

Calculate the two regression equation.

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Second Year B.C.A. (Sem. III) Examination

March/April - 2016

301 : Statistical Methods(New Course)

[Time: 3 Hours] [Total Mark:70]

Instructions

Fill up strictly the details of signs on your answer book

Name of the Examination:
☐ **Second Year B.C.A. (Sem. III)**

Name of the Subject :
☐ **Statistical Methods: Paper 301**

Subject Code No.: 3 7 3 5

Seat No.:

Student's Signature

(2) Give appropriate example when require

(3) Do not change options.

(4) Mention your options clearly.

(5) Use of calculator is permitted.

Q.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 , $S^2_x : S^2_y$ = 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 , Σx = 60, Σx^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.

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Q.2.   Attempt any two: 14

(1)   Find the mode of the following data :

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

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

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

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

Class	5-10	10- 15	15-20	20-25	25-30	30-35
Frequency	11	20	35	20	?	6

Q.3. Attempt any two: 14

(1)   Find combined standard deviation of following data :

No. of observations	Group A	Group B
	20	10
Mean	22	16
SD	$\sqrt{6}$	$\sqrt{2}$

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

Xi	1	2	3	4	5	6	7	8	9
Fi	92	49	52	82	102	60	35	24	4

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(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.

Q.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.

Year	2005	2006	2007	2008	2009	2010	2011	2012
Production	100	102	104	107	105	112	103	99
No.of unemployed	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.

Judge X:	2	4	3	8	1	5	7	6
Judge Y:	5	3	2	7	1	8	6	4
Judge Z:	3	1	5	4	2	6	8	7

(2)   For 10 pairs of observations on (X, Y) we get $\overline{X}$ = 12, $\overline{Y}$ = 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.

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Q.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 summarized data :

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

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November/December-2014

S.Y.B.C.A. (Sem. III) (CBCS) Examination

301 : Statistical Methods

[Time: 3 Hours]

Instructions

Fill up strictly the details of signs on your answer book

Name of the Examination:
- **Second Year B.C.A. (Sem. III)**

Name of the Subject :
- **Statistical Methods: Paper 301**

Subject Code No.: | 3 | 7 | 3 | 5 |

Seat No.:

Student's Signature

(2) All the questions are compulsory.

(3) Figures to the right indicate full marks.

(4) Mention your option clearly.

[Total 70 Marks]

1. **Do as directed : (any seven)**   14

(1) Compute the mean from the following data : 80, 84, 88, 83, 86, 84, 87

(2) In the rank correlation coefficient, if $\Sigma d^2 = 0$, P = _____ .

(3) b_{yx} = 1.17, $S_x^2 : S_y^2$ = 9.18, find r and b_{xy}.

(4) If two variables are having ranks in reverse order, write the value of r.

(5) A regression equation given by x+5y = 10, if x = 5 then find y.

(6) If covariance between two variables X and Y is 20.25 and Standard Deviation of X and Y are 5 and 4.5 respectively. Calculate correlation co-efficient between X and Y.

(7) What are the numerical limits of r ? What does it means when r equals one ? Zero ? minus one ?

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(8) What is Standard Deviation ?

(9) If Mean = 68, Mode = 28.5 and C.V. = 58 then Median = _____ .

(10)   What is the measure of Central Tendency ?

2. Attempt any two   14

(1) The Human Resource Manager at a city hospital began a study of the Overtime hours of the registered nurses. Fifteen nurses were selected at random and following overtime hours during a month were recorded :

13, 13, 12, 15, 7, 15, 5, 12, 6, 7, 12, 10, 9, 13, 12 ,5, 9, 6, 10, 5, 6, 9, 6, 9, 12.

Calculate the arithmetic mean of overtime hours during the month

(2) Find the missing frequencies in the following frequency distribution. The A.M. of the given data is 11.09 .

Class Interval	Frequency	Class interval	Frequency
9.3 - 9.7	2	11.3 – 11.7	14
9.8 - 10.2	5	11.7 – 12.2	6
10.3 - 10.7	F_1	12.3 – 12.7	3
10.8 - 11.2	F_2	12.8 – 13.2	1

Total of all frequency 60.

(3) A Survey was conducted to determine the age(in years) of 120 automobile. The result of such a survey is as given below:

Age of Auto	0-4	4-8	8-12	12-16	16-20
No of Autos	13	29	48	22	8

What is the median age for the autos ?

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3. Attempt any Two :   **14**

1) The wholesale prices of a commodity for 7 consecutive days in a month are as follows :

Day	1	2	3	4	3	6	7
Price/Quintal	240	260	270	245	255	286	264

Calculate the variance and Standard Deviation.

2) A study of the ages of 100 person grouped into intervals 20-22, 22-24, 24-26 ,…….. revealed the mean age and standard deviation to be 32.02 and 13.18 respectively. While checking, it was discovered ha observation 57 was misread as 27. Calculate the correct mean age and standard deviation.

3) The weekly sales of two products A and B were recorded as given below:

Product A	59	75	27	63	27	28	56
Product B	150	200	125	310	330	250	225

Find out which of the two shows greater fluctuate in sales.

4. Attempt any two   **14**

1) The following table gives indices of industrial production and number of registered unemployed people(in lacs) calculate the value of coefficient.

Year	1991	1992	1993	1994	1995	1996	1997	1998
Production	100	102	104	107	105	112	103	99
Unemployed	15	12	13	11	12	12	19	26

2) The following table gives the frequency according to the marks obtain by 67 students in intelligence test. Measure the degree of relationship between age and marks.

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Total Mark	Age				Total
	18	19	20	21	
200-250	4	4	2	1	11
250-300	4	5	4	2	14
300-350	3	6	8	5	21
350-400	2	4	6	10	21
Total	10	19	20	18	67

3) Quotations of Index Number of security prices of a certain joint stock company are given below :

Year	Debenture Price	Share Price
1	97.8	73.2
2	99.2	85.8
3	98.8	78.9
4	98.3	75.8
5	98.4	77.2
6	96.7	87.2
7	97.1	83.8

Using the rank correlation   method, determine the relationship between debenture price and share price.

5. Attempt any two 14

1) The owners of a small garment shop is hopeful that his sales are rising significantly week by week. Treating the sales for previous six weeks as a typical example of this rising trend, he recorded them in Rs. ('000) and analys the results.

Week	1	2	3	4	5	6
Years	2.69	2.62	2.80	2.70	2.75	2.81

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Fit a linear regression equation to suggest to him the weekly rate at which his sales are rising and use this equation to estimate expected sales for the 7th week.

2) You are the following information advertising expenditure and sales :

	Advertiement(X) (Rs. in lacs)	Sales(Y) (Rs. in lacs)
Arithmetic Mean	10	90
Standard Deviation.	3	12

Correlation of Coefficient = 0.8.

(a) Obtain Two Regression Equation

(b) Find likely sales when advertisement budget is Rs. 15 lac

3) With the ten observations on price (x) and supply (y),

The Following data were obtained.

$\Sigma x = 130$, $\Sigma y = 220$, $\Sigma x^2 = 2288$, $\Sigma y^2 = 5506$, $\Sigma xy = 3467$

Obtain the line regression of y on x and estimate supply when price 16 is units.

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S.Y.B.C.A. (Sem. III) Examination

October/November-2019

301: Statistical Methods

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

Instructions

(1)

Subject_Code:1911000103010001

Seat No.:

Fill up strictly the details of signs on your answer book

Name of the Examination:

☐ **Second Year B.C.A. (Sem. III)**

Name of the Subject :

☐ **Statistical Methods: Paper 301**

Student's Signature

(2)   All the questions are compulsory.

(3)   Figures to the right indicate full marks.

(4)   Mention your option clearly.

Q.1]   Do as directed: (Any Seven)   14

1. Find Geometric mean of 3, 6, 24 and 48.

2. Find the range and coefficient of range of the data 3, 7, 2, 5, 8,1.

3   b_{yx}=1.17 and Sx^2: Sy^2= 9:81 then find r and b_{xy}

4. If n =10, Σx= 60, Σx^2 = 1000, then find standard deviation.

5. What is the standard deviation of 5, 5, 5, 5, and5.

6. Compute Median for the following data:

    4, 6, 5, 8, 12, 7, 10, 5, 15, 9, 10, 11.

7. If two variables have perfect positive correlation then r =_____.

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8. If the sums of squares of rank differences of 7 pairs are 74 then find co efficient of correlation.

9. If r_1 and r_2 are two regression coefficients, then signs of r1 and r2 depend on _____.

10. If y = x + 1 and x = 3y - 7 are two lines of regression, then

$\bar{x}$ = _____ $\bar{y}$ _____ and r = _____.

Q.2] Attempt any two: [14]

1) Mean of the following frequency distribution is 18.1. Find the missing frequency.

Class	5-10	10-15	15-20	20-25	25-30	30-35
Frequency	11	20	35	20	?	6

2) Calculate Quartile deviation and coefficient of Quartile deviation:

Class	17-19	20-25	26-35	36-40	41-50	51-55	56-60	61-70
Frequency	9	16	12	26	14	12	6	5

3) The length of time taken by each of 18 workers to complete a specific task was observed to be the following:

Time(mins.)	5-9	10-14	15-19	20-24	25-29
No. of workers	3	8	4	2	1

Calculate a median time.

Q.3]   Attempt any two: [14]

1) Find combined standard deviation of the following data:

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

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

Xi	1	2	3	4	5	6	7	8	9
Fi	92	49	52	82	102	60	35	24	4

3) The mean and the standard deviation of a sample of 10 sizes were found to be 9.5 and 2.5 respectively. Later on, an additional observation became available. This was 15.0 and was included in the original sample. Find the mean and standard deviation of 11 observations.

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

1) Calculate Correlation Co-efficient:

Production	100	102	104	107	105	112	103	99
No. of unemployed	15	12	13	11	12	12	19	26

2) Calculate correlation coefficient using the following data:

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

3) For 10 pairs of observations on (X,Y) we get $\bar{X} = 12$, $\bar{Y} = 15$, $S_x = 3$, $S_y = 4$, $r = 0.5$.
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.

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

1) From the following data, find the two regression equations.

X	4	5	6	7	1	2	3
Y	6	5	6	5	2	4	7

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

	Adv. Exp. (x) (in crores)	Sales (y) (in crores)
Mean	20	120
S.D.	5	25

Correlation Coefficient = 0.8. Compute the two regression lines.

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

n = 7, Σx = 21, Σy = 20, Σx^2 = 91 , Σxy = 74.

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