STA 302.1 **Reg. No. ……**

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2012
STATISTICS
DATA ANALYSIS

Time: 3 Hrs **Max. Marks: 80**

Note: Graph sheets will be provided on request.

PART - A

Answer any TEN of the following:
2X10=20

1. a)What is secondary data? Write the sources of secondary data.

b)Distinguish between inclusive and exclusive class intervals.

c) Define classification. Write any two functions of classification.

d)Write an advantage and a limitation of diagrammatic and graphical representation of data.

e)For two values 1 and 4, show that AM > GM > HM.

f) For the following distribution of heights (in cms) of 8 students, find coefficient of range: 165, 162, 168, 170, 159, 167, 160, 164

g)Define Skewness and Kurtosis.

h)What are normal equations?

i) Write the different components of time series.

j) If X and Y are perfectly positively correlated and V(X) = 16 & V(Y) = 0.64, then find COV(X, Y).

k)Write any two properties of Karl Pearson's coefficient of correlation.

l) Define rank correlation.

PART – B

Answer any TWO of the following:
10x2=20

2. a)A genetist observes a hybrid variety of beans. He counts the number of seeds in each of the 50 bean pods – The data is as follows:

No. seeds/bean pod

4	2	3	5	3	2	1	3	1	4
5	2	2	4	7	5	3	2	3	1
5	6	4	3	4	2	5	3	5	6
2	1	3	3	2	1	4	5	2	2
4	3	2	6	4	5	6	3	2	3

Form a discrete frequency distribution table.

b)Draft a blank table to show the distribution of employees in an office according to
(i) Sex : Male, female
(ii) Salary Grade: Below ` 3000, ` 3000 to ` 5000, ` 5000 and above.
(iii) Designation: Supervisor, Assistant, Clerk

3. Draw a histogram for the following frequency distribution of height of students. From the histogram, obtain the frequency polygon. Also find the mode of the distribution

Height (cms):	140-150	150-160	160-170	170-180	180-190
No. of students	5	15	20	10	2

(10)

4. Represent the following data regarding density of population by multiple bars.

State	Density (per sq. km)		
	1981	**1991**	**2001**
West Bengal	615	766	904
Kerala	655	747	819
U.P.	377	471	689
Maharashtra	204	256	314
Karnataka	194	234	275

(10)

Answer any TWO of the following:
10x2=20

5. a) In the past four weeks, the inflation rates were 6.7, 5.4, 5.3 and 5.1 percent respectively. Find the average inflation rate.

b) Compute trend values by finding four yearly moving averages for the following time series.

Year :	2000	2001	2002	2003	2004	2005	2006	2007	2008
Value:	103	104	107	101	102	104	105	99	100

(5+5)

6. a) Calculate Bowley's coefficient of Skewness.

No. of children/couple:	0	1	2	3	4	5	6	7	8
No. of Couples :	10	15	28	20	10	7	2	2	1

b) Find mean deviation from mean for the following data.

CI :	0-10	10-20	20-30	30-40	40-50
Frequency:	4	15	28	16	7

(5+5)

7. The following are the distributions of lives of electric bulbs manufactured by two firms. Compare their means and variations.

Life (Hours)	: 800-899	900-999	1000-1099	1100-1199	1200-1299
Firm A	: 8	21	14	4	3
Firm B	: 16	24	40	16	4

(10)

Answer any TWO of the following:
10x2=20

8. Find the correlation coefficient between age and salary of 50 workers in a factory.

Age (Years)	**Daily Pay (`)**				
	160-169	**170-179**	**180-189**	**190-199**	**200-209**
20-30	5	3	1	-	-
30-40	2	6	2	1	-
40-50	1	2	4	2	2
50-60	-	1	3	6	2
60-70	-	-	1	1	5

(10)

9. a)Ten competitors in a beauty contest are ranked by three judges as follows:

	Competitors									
Judges	1	2	3	4	5	6	7	8	9	10
A	6	5	3	10	2	4	9	7	8	1
B	6	8	4	7	10	2	1	5	9	3
C	4	9	8	1	2	3	10	5	7	6

Discuss which pair of judges has the nearest approach to common tastes of beauty.

b)In a bivariate data, the regression lines are 3x+5y-3=0 and 4x+3y-4=0. Find $\bar{x}, \bar{y}$ and *r*.

(5+5)

10. The following are the percentage marks in Mathematics and Statistics of 10 students.

Mathematics	75	80	93	65	87	71	98	68	89	77

Statistics	82	78	86	72	91	80	95	72	89	74

Find the expected marks in Statistics of a student who has scored 90% in Mathematics and expected marks in Mathematics of a student who has scored 95% in Statistics.

(10)

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STA 302.1 **Reg. No. ……**

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2013

STATISTICS-I

DATA ANALYSIS

Time: 3 Hrs **Max. Marks: 80**

Note: Graph sheets will be provided on request.

PART - A

Answer any TEN of the following:
2X10=20

1. a)What is primary data? Mention any two methods of collection of primary data.

b)What is dichotomy? Explain with examples.

c)What do you mean by inclusive and exclusive class intervals?

d)What is the need for diagrammatic and graphical presentation of Statistical data?

e)Mention a merit and a demerit of Median.

f) What is dispersion? What are its measures?

g)Define Kurtosis. Mention its types.

h)Write the normal equations for fitting the first degree trend $y = a + bx$.

i) What do you mean by business cycle?

j) What are the various types of correlation that can be observed in bivariate data?

k)What is correlation? Explain with example.

l) In a bivariate data, the variances of the variables are 49 and 81. The covariance is – 12. Find coefficient of correlation.

PART – B

Answer any TWO of the following:
10x2=20

2. a)Prepare a blank table for the presentation of the data relating to student strength of a college (classified according to faculty (Arts, Science, Commerce), class (PUC and degree) and sex.

b)A psychologist estimates the I.Q. (Intelligence Quotient) of 28 students. The values are as follows:
103, 86, 94, 97, 100, 113, 102, 76, 95, 98, 101, 99, 83, 94, 64, 78, 122,
105, 68, 84, 90, 100, 96, 98, 78, 96, 79
Form a frequency distribution with class intervals of width 5 each.
(5+5)

3. Draw histogram for the following frequency distribution and find mode. Also verify the result by applying the formula.

C.I.	:	0-10	10-20	20-30	30-40	40-50
Frequency	:	12	15 20	8	5	

(10)

4. Represent the following data regarding cost components of construction of a house by component bars.

Particulars	**Cost in Rupees**		
	1980	**1990**	**2000**
Steel	20,000	60,000	1,20,000
Cement	20,000	30,000	60,000
Wood	10,000	20,000	50,000
Bricks	10,000	20,000	30,000
Labour	20,000	30,000	50,000
Miscellaneous	20,000	40,000	90,000
Total	1,,00,000	2,00,000	4,00,000

(10)

Answer any TWO of the following:
10x2=20

5. a) Find the Geometric Mean for the following data:

C.I.	:	100-110	110-120	120-130	130-140
Frequency	:	20	25	10	5

(10)

b) Find Four yearly moving averages for the following time series.

Year :	1998	1999	2000	2001	2002	2003	2004	2005
Value:	54	40	47	48	42	42	36	42

(5+5)

6. a) Calculate Pearson's coefficient of Skewness.

X	:	10	11	12	13	14	15
Frequency	:	2	4	10	8	5	1

b) Compute mean deviation from mean and also coefficient of mean deviation from mean for the following data.

Height of Plants (cms): 140, 147, 143, 146, 144, 168, 189, 120 **(5+5)**

7. The following are the runs scored by two batsmen A and B in 10 innings.

A	:	101	27	0	36	82	45	7	13	65	14
B	:	97	12	40	96	13	8	85	8	56	15

i) Who is a better run scorer?
ii) Who is more consistent in scoring?

(10)

Answer any TWO of the following:
10x2=20

8. From the following data regarding age and number of children of 60 women, find the coefficient of correlation.

Age (Years)	**Number of children**				
	0	**1**	**2**	**3**	**4**
20-29	8	10	9	1	-
30-39	2	4	5	4	-
40-49	2	2	4	1	2
50-59	-	-	2	2	2

(10)

9. a)In two examinations, six candidates have secured marks as follows. Find the coefficient of rank correlation:

Student	1	2	3	4	5	6	7	8
I Exam	36	42	39	84	55	36	68	70
II Exam	32	91	56	96	54	43	56	32

b)In a bivariate data, the regression equations are 3x+4y=1 and 3x+y=4. Find $\bar{x}, \bar{y}$ and *r*.

(5+5)

10. The following are the percentage marks in Mathematics and Statistics of 10 students.

Mathematics	30	46	57	83	51	13	62	27	19	28
Statistics	37	52	61	91	47	17	74	35	24	46

Find the expected marks in Statistics of a student who has scored 75% in Mathematics and expected marks in Mathematics of a student who has scored 90% in Statistics.

(10)

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STA 302.1 **Reg. No. ……**

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2014

STATISTICS

DATA ANALYSIS

Time: 3 Hrs **Max. Marks: 80**

Note: Graph sheets will be provided on request.

PART - A

Answer any TEN of the following:
2X10=20

1. a)What are the essentials of a good questionnaire?

b)Explain with examples: (i) Discrete Variables

(ii) Continuous variables

c)What is Tabulation? How does it differ from classification?

d)Write an advantage and a limitation of diagrammatic and graphical representation of data.

e)Find the geometric mean of 1, 4 and 16.

f) Calculate the quartile deviation and its coefficients if the three quartiles are 128, 147 and 157.

g)Define 'Central moments' 'Raw moments'.

h)Define Skewness and Kurtosis.

i) Write the different components of time series.

j) In a bivariate data and . Find the coefficient of correlation.

k)What is correlation? With examples explain Positive and Negative correlation.

l) If the regression coefficients are 0.8 and 0.45 find *r*.

PART – B

Answer any TWO of the following:
10x2=20

2. a)A Psychologist estimates the I.Q. of 28 students. The values are as follows:

103, 86, 94, 97, 100, 113, 102, 76, 95, 98, 101, 99, 83, 94, 64, 78, 112,

105, 115, 68, 84, 90, 100, 96, 98, 78, 96, 79

Form a frequency distribution with class intervals of width 5 each.

b)Draft a blank table to show the population of a city in two different years according to sex, literacy (literates & illiterates) and religion (Hindu, Muslim and Christian) **(5+5)**

3. Draw histogram for the following data. Obtain the frequency curve from the histogram.

Life	:	800-899	900-999	1000-1099	1100-1199	1200-1299	1300-1399

No. of Bulbs :	12	15	20	8	5	7

(10)

4. Represent the following data regarding percentage literacy in India by multiple bars.

Year	Men	Women
1911	10.6	1.1
1931	15.6	2.9
1951	25.0	7.9
1971	39.5	18.7
1991	63.9	39.4
2001	76.9	54.2

(10)

Answer any TWO of the following:
10x2=20

5. a) The population of a city increased at the rates 18% and 8% in two successive years. In the next two successive years, it decreased at the rates 5% and 4% Find the average rate of growth.

b) Compute the trend values by finding four yearly moving averages for the following time series.

Year :	1998	1999	2000	2001	2002	2003	2004	2005	2006
Value:	103	104	107	101	102	104	105	99	100

(5+5)

6. a) Calculate Bowley's coefficient of skewness.

No. of Children:	0	1	2	3	4	5	6	7
No. of couples :	10	15	28	20	10	7	2	2

b) Calculate mean deviation from mean.

Wage :	240-260	2060-280	280-300	300-320	320-340	340-360
No. of Workers :	12	47	31	8	2	3

(5+5)

7. In a school, the intelligent students are admitted to Batch A of a class, and the others are admitted to Batch B. The students in the two batches are aged as follows. Compare their average age and variations.

Age (years)	10	11	12	13	14	15
Students (Batch A)	14	20	11	2	2	1
Students (Batch B)	2	12	11	13	4	2

(10)

Answer any TWO of the following:
10x2=20

8. The following is the joint distribution of age of brides and bridegrooms. Calculate the coefficient of correlation.

Age of bridegrooms (Years)	Age of brides (years)

	18-20	20-22	22-24	24-26	26-28
20-24	7	6	1	--	--
24-28	3	8	6	4	8
28-32	1	2	3	8	8
32-36	--	1	1	1	2

(10)

9. a)Calculate the coefficient of rank correlation

X	18	28	35	44	35	26	37	48
Y	83	51	34	34	34	28	46	47

b)In a bivariate data, the regression lines are

(i) Find and (ii) Find *r*

(5+5)

10. The following are the heights of 8 men and their wives. Find the coefficient of correlation between the heights and expected height of husband whose wife is 170 cms tall and expected height of wife whose husband is 182 cms tall.

Husband (cms)	164	176	178	184	175	167	173	180
Wife (cms)	158	164	165	171	163	156	163	169

Find the expected marks in Statistics of a student who has scored 75% in Mathematics and expected marks in Mathematics of a student who has scored 90% in Statistics.

(10)

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STA 302 **Reg. No. ……**

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2015

STATISTICS

DATA ANALYSIS

Time: 3 Hrs **Max. Marks: 70**

Note: Graph sheets will be provided on request.

PART - A

Answer any TEN of the following:
1X10=10

1. a)Distinguish between classification and tabulation.

b)Explain with an example (i) Attribute (ii) Variable

c)Mention any two limitations of graphical presentation of data.

d)A teacher calculated the mean marks of 10 students as 83. Afterwards he increased the marks of one student by 7. Find the new mean.

e)Define Geometric Mean.

f) How do you find the Median graphically?

g)Write down the Empirical relation between Mean, Median and Mode.

h)If the distribution is ……..

i) In a bivariate data on x and y and . Find .

j) The two regression coefficients are 81 & .01. Find the correlation coefficient.

k)Write down any 2 properties of regression coefficients.

l) In a bivariate data, the regression lines are and . Find $\bar{x}$ and $\bar{y}$.

PART – B

Answer any TWO of the following:
10x2=20

2. a)The following are the percentage marks of 48 students in an examination. Form a frequency distribution with class intervals 0 – 19, 20 – 29, 30 – 34, 35 – 39, 40 – 44, 45 – 49, 50 – 59, 60 – 69 and 70 – 79.

39	43	62	30	47	33	46	17	38	10	36	29	40
32	39	24	57	42	15	30	39	53	47	64	31	07
37	47	27	43	36	39	36	25	34	30	50	76	42
43	54	40	39	22	40	65	32	36				

b)Draw up a blank table to show the number of candidates sexwise, appearing in the Pre-University, First Year, Second Year and Third Year examinations of a University in the faculties of Art, Science and Commerce in a certain year.

(5+5)

3. For the following frequency distribution of height of students, draw the histogram. From the histogram, obtain the mode.

Height (cms)	140-145	145-150	150-155	155-160	160-165	165-170	170-175
No. of Students	4	10	18 20	19	6	3	

(10)

4. Draw a Pie diagram for the following data of Sixth five year plan Public Sector outlays:

Agriculture and Rural Development	12.9%
Irrigation	12.5%
Energy	27.2%
Industry and Minerals	15.4%
Transport Communication	15.9%
Social Services and Other	16.1%

(10)

Answer any TWO of the following:
10x2=20

5. a) Two doctors X and Y measured the systolic blood pressure of two groups of men, and the results were

	No. of Men	**Mean Pressure**	**Standard Deviation**
Doctor X:	113	159 m.m.	22.4 m.m.
Doctor Y:	121	149 m.m.	20.0 m.m.

b) Calculate Median, 4th Decile K 76th Percentile for the following distribution of 'Number of Students present in the Class' on different days.

No. of students :	73	74	75	76	77	78	79	80
No. of days :	2	14	29	36	43	38	34	29

(5+5)

6. a) Population of a city grew at the rates 4%, 3%, 10%, 12% and 18% in five successive years. Find the average growth rate.

b) The following are the distributors of age at the time of first delivery of 65 Women.

Age (Years) :	18 – 22	22 – 26	26 – 30	30 – 34	34 – 38
Women :	20	30	11	3	1

Find the mean deviation from the age 25 years.

7. The following are the prices in rupees of a commodity at different shops in Bangalore and Hubli.

Bangalore :	73	78	72	74	75	73	72	74
Hubli :	75	72	74	72	76	72		

(i) Which of the cities show higher average price?

(ii) In which city is price more consistent?

(10)

Answer any TWO of the following:
10x2=20

8. a) From the following data regarding age and number of children of 60 women, find the coefficient of correlation.

Age (years)	No. of Children				
	0	1	2	3	4
29 – 29	8	10	9	1	-
30 – 39	2	4	5	4	-
40 – 49	2	2	4	1	2
50 – 59	-	-	2	2	2

(10)

9. a) Find coefficient of rank correlation for the following data.

X	:	43	96	74	38	35	43	22	56	35	80
Y	:	30	94	84	13	30	18	30	41	48	95

b)The two regression lines are $\bar{y}$ and $\bar{y}$. Find the means and the correlation coefficient of the variables. **(5+5)**

10. The following are the percentage marks in Mathematics and Statistics of 10 students.

Mathematics:	75	80	93	65	87	71	98	68	89	77
Statistics :	82	78	86	72	91	80	95	72	89	74

a) Find the expected marks in Statistics of a student who has scored 75% in Mathematics.

b) Find the expected marks in Mathematics of a student who has scored 95% in Statistics.

(10)

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3. Draw the Ogives for the following frequency distribution and find the Median. Also verify the result by applying the formula.

Marks less than	10	20	30	40	50	60	70	80	90	100
No. of students	3	14	29	52	66	72	76	78	79	80

(10)

4. Represent the following data regarding expenditure of two families by component pie diagram.

Items		Food	House Rent	Fuel	Education	Misc.
Monthly Expenditure (in Rupees) : Family A		1800	900	450	450	1800
	Family B	1800	1800	660	660	6000

(10)

Answer any TWO of the following: **10x2=20**

5. a) Compute Harmonic Mean for the following data.

CI :	10-12	12-14	14-16	16-18	18-20
Frequency :	2	18	20	13	7

b) The following are the figures of production in a sugar factory.

Year :	1998	1999	2000	2001	2002	2003	2004	2005
Value:	40	43	42	39	40	37	35	39

(5+5)

i) Fit a straight line trend by the method of least squares
ii) Estimate the production for the year 2006

6. a) Calculate Bowley's coefficient of Skewness.

X :	0	1	2	3	4	5	6
Frequency :	12	27	29	19	8	4	1

b) Compute Mean deviation from Median and also coefficient of Mean deviation from Median for the following data.

X :	0	1	2	3	4	5	6
Frequency :	36	18	27	17	13	3	2

(5+5)

7. The following are the distributions of monthly pay of workers of two factories.

Pay (₹):	400-600	600-800	800-1000	1000-1200	1200-1400
Factory A:	4	18	25	2	1
Factory B:	10	20	42	18	10

i) In which factory is average salary higher?
ii) In which factory is salary variation more. **(10)**

Answer any TWO of the following: **10x2=20**

8. The following is the joint distribution of age of brides and bride-grooms. Calculate the coefficient of correlation.

Age of Bride-groom (Years)		Age of bride (Years) 18-20	20-22	22-24	24-26	26-28
20-23	:	7	6	1	-	-
23-26	:	3	8	6	4	8
26-29	:	1	2	3	8	8
29-32	:	-	1	1	1	2

(10)

9. a) Regression of Y on X is Y =X – 2 and regression of X on Y is X = 0.5Y + 1.5. Find $\bar{x}$, $\bar{y}$ and r.

(x, y): (5, 8), (10, 3), (6, 2), (3, 9), (19, 12), 6, 3)
(6, 17), (12, 18), (8, 22) (2, 12) (10, 17) (19, 20)

b) The following are the sales statistics of 6 sales representatives in two different weeks. Find the Spearman's coefficient of rank correlation.

Representative:	1	2	3	4	5	6
I Week sales:	60	110	65	40	70	20
II Week sales:	90	100	40	30	70	20

(5+5)

10. The following data are the heights of 10 persons and one each of their sons.

Father (cms)	158	160	163	165	167	170	167	172	177	181
Son (cms)	163	158	167	170	160	180	170	175	172	175

a) Find the two regression equations
b) Find the most probable height of a person whose father is 184 cms. **(10)**

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STA 302.1 Reg. No. .....

CREDIT BASED THIRD SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2016

STATISTICS

DATA ANALYSIS

Time: 3 Hrs **Max. Marks: 80**

Note: Graph sheets will be provided on request.

PART - A

Answer any TEN of the following: **2X10=20**

1. a) Define discrete and continuous variables.

   b) Mention the different parts of statistical table.

   c) Define class interval and class mark.

   d) What do you mean by bar diagrams?

   e) Find the Median for the following

      15, 12, 5, 13, 12, 15, 1, 15, 9, 8

   f) If $Q_1 = 17.85$, $Q_3 = 34.16$, then find Quartile deviation and its coefficient.

   g) Draw the diagrams to show platykurtic and leptokurtic curves and explain.

   h) What is a time series? Explain with examples.

   i) Mention the components of time series.

   j) Mention any two properties of Karl Pearson's coefficient of correlation.

   k) Define Spearman's rank correlation coefficient.

   l) Draw scatter diagrams to show perfect positive and perfect negative correlation exist between X and Y variables and comment.

PART – B

Answer any TWO of the following: **10x2=20**

2. a) Draft a blank table to show the distribution of workers of a factory according to

      (i) Sex : Male, Female

      (ii) Grade: Officers, Staff, Workers

      (iii) Age: less than 25 years, 25 to 40 years, above 40

   b) The following are the weights of 30 students. Draw up a frequency distribution with class intervals of width 5 kgs each.

      Weight (Kgs): 51, 47, 50, 54, 68, 52, 40, 49, 52, 49, 44, 50, 53, 58, 46, 50, 51, 53, 48, 50, 55, 52, 55, 58, 63, 54, 52, 49, 50, 58.