

<b>Annexure No.</b>	<b>20 D</b>
<b>SCAA Dated</b>	<b>29.02.2008</b>

**BHARATHIAR UNIVERSITY, COIMBATORE**  
(For the students admitted from 2008 – 2009 onwards)  
**B.Com / B.Com (Computer Applications)**  
**PART – III – GROUP B – ALLIED**

**Subject Title: STATISTICS FOR BUSINESS**                      **Number of hours :**

**Subject description:** This course introduces the concepts, methods and the application of Statistical Tools that are essential for commerce, economics and industry

**Goal** : To enable the students to learn the Statistical methods and their applications in Commerce

**Objective :** On successful completion of this course the students shall enrich to solve the Statistical problems in commerce

Unit I:

Meaning and Definition of Statistics – Collection of data — Primary and Secondary - Classification and Tabulation – Diagrammatic and Graphical presentation  
Measures of Central tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean – simple problems

UNIT II :

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation, Standard Deviation and Co-efficient of Variation.

Skewness – Meaning – Measures of Skewness - Pearson's and Bowley's co-efficient of Skewness.

UNIT III:

Correlation – Meaning and Definition – Scatter diagram, Karl Pearson's co-efficient of Correlation, Spearman's Rank Correlation, Co-efficient of Concurrent deviation.

Regression Analysis – Meaning of regression and linear prediction – Regression in two variables – Uses of Regression

Unit IV:

Time Series – Meaning, Components and Models – Business forecasting – Methods of estimating trend – Graphic, Semi-average, Moving average and Method of Least squares – Seasonal Variation – Method of Simple average.

Index Numbers – Meaning, Uses and Methods of construction – Un-weighted and Weighted index numbers – Tests of an Index number – Cost of living index number.

UNIT V:

Interpolation: Binomial, Newton's and Lagrange methods.  
Probability – Concept and Definition – Addition and Multiplication theorems of Probability (statement only) – simple problems based on Addition and Multiplication theorems only.

**Books Recommended:**

1. Statistical Methods by S.P. Gupta
2. Business Mathematics and Statistics by P. Navaneetham
3. Statistics by R.S.N. Pillai and V. Bagavathi
4. Statistics-Theory, Methods & Application by D.C. Sancheti and V.K. Kapoor
5. Applied General Statistics by Frederick E. Croxton and Dudley J. Cowden

(For the candidates admitted from 2008 – 2009 onwards)

**B.Com (CA) DEGREE EXAMINATION  
Allied - STATISTICS FOR BUSINESS**

Time : Three hours

Maximum : 100 marks

**SECTION A – (10 X 1 = 10 marks)**

Answer **ALL** the questions

1. Data originally collected for an investigation is known as  
(a) secondary data (b) primary data (c) grouped data (d) sources of data
2. In chronological classification data are classified on the basis of  
(a) attributes (b) class intervals (c) time (d) location
3. Which of the following is not a Measure of central tendency?  
(a) Mean (b) Median (c) Mode (d) Range
4. The formula for co-efficient of variation is  
(a)  $\frac{\sigma}{X} \times 100$  (b)  $\frac{X}{\sigma} \times 100$  (c)  $\frac{X}{\sigma}$  (d)  $\frac{\sigma}{X}$
5. Rank correlation co-efficient was developed by  
(a) Pearson (b) Spearman (c) Fisher (d) none of these
6. If one of the regression co-efficients is  $> 1$ , the other must be  
(a)  $= 1$  (b)  $< 1$  (c)  $> 1$  (d) 0
7. Which one of the following is a component of Time Series?  
(a) Regression (b) Correlation (c) Trend (d) Index Numbers
8. Laspeyre's index is based on  
(a) Base year quantities (b) Current year quantities (c) both (d) none of these
9. When 'x' variable advances by equal intervals and the value of 'x' for which 'y' is to be interpolated in one of the class limits of 'x' series, the method used for interpolation is  
(a) Binomial (b) Newton's (c) Lagrange's (d) none of these
10. The limits for probability lies between  
(a) -1 and +1 (b) 0 and 1 (c) -1 and 0 (d) none

**SECTION B - ( 5 X 6 = 30 marks)**

Answer **ALL** the questions

11. (a) What is secondary data. What are the sources of secondary data? (or)  
(b) What are the advantages of a diagrammatic representation?
12. (a) Define Mean and Median. Give their merits and demerits (or)  
(b) Calculate Geometric mean

C.I.	:	10-20	20-30	30-40	40-50	50-60
F	:	8	10	12	8	4

13. (a) Compute Rank correlation co-efficient for the following data

X :	15	20	28	12	40	60	20	80
Y :	40	30	50	30	20	10	30	60

(or)

- (b) What are regression equations? Why we have two regression equations?

14. (a) Calculate trend by moving average method for the following data assuming four yearly cycle

Year :	1992	1993	1994	1995	1996	1997	1998	1999
Production:	600	620	650	680	680	660	700	720

(or)

- (b) Calculate (i) Laspeyre's (ii) Paashe's Index numbers from the following data

Commodity	Base year		Current Year	
	Price	Quantity	Price	Quantity
A	2	40	5	75
B	4	16	8	40
C	1	10	2	24
D	5	25	10	60

15. (a) Interpolate 'y' when x=32 from the following data by the Binomial expansion method

X :	30	34	36	38	40
Y :	340	353	358	364	369

(or)

- (b) Two students x and y work independently on a problem. The probability that x will solve a problem is  $\frac{3}{4}$  and the probability that y will solve it is  $\frac{2}{3}$ . What is the probability that the problem will be solved?

### SECTION C - (5 X 12 = 60 marks)

Answer **ALL** the questions

16. (a) Explain any three methods of collecting primary data. Give their merits and demerits

(or)

- (b) From the following table, draw Ogive curves and hence find median

Wages :	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of workers:	5	8	10	14	11	6	3

17. (a) Goals scored by Teams A and B in a Foot ball season are as follows

No. of goals scored in a match	No. of Matches	
	Team A	Team B
0	27	17
1	9	9
2	8	6
3	5	5
4	4	3

Which team is more consistent?

(or)

(b) Calculate mean, median and mode from the following data

Marks	:	Below 10	Below 20	Below 30	Below 40	Below 50
No. of students:		3	8	17	20	22

18. (a) Calculate Karl Pearson's Co-efficient of Correlation

X :	15	20	28	12	40	60	20	80
Y :	40	30	50	30	20	10	30	60

(or)

(b) Obtain two regression equations and also estimate 'x' when y = 26.

X :	10	12	13	17	18	20	24	30
Y :	5	6	7	9	13	15	20	21

18. (a) Calculate Seasonal indices for the following data by simple average method

Year	Quarter			
	I	II	III	IV
1984	3.7	4.1	3.3	3.5
1985	3.7	3.9	3.6	3.6
1986	4.0	4.1	3.3	3.1
1987	3.3	4.4	4.0	4.0

(or)

(b) Calculate Fisher's ideal Index number and show that it satisfies Time reversal test and Factor reversal test from the following data

Commodity	Price		Quantity	
	1999	2005	1999	2005
A	6	8	10	12
B	10	10	5	8
C	5	7	8	10
D	15	20	12	15
E	20	25	15	10

20. (a) Use Newton's formula to estimate the expectation of life at the age of 27.

Age	:	20	25	30	35	40
Expectation of Life	:	33	29.8	26.6	23.5	20.5

(or)

(b) (i) A committee of 4 persons is to be appointed from 7 men and 3 women. What is the probability that the committee contains (i) exactly two women and (ii) at least one woman?

(ii) The probability that India wins a cricket – test match against Sri Lanka is  $\frac{1}{3}$ . If India and Sri Lanka play three test matches, what is the probability that

(a) India will lose all the three matches

(b) India will win at least one test match