

Reg. No. :

Name :

**I Semester B.Sc. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/
Improvement) Examination, November 2023
(2019 Admission Onwards)
CORE COURSE IN STATISTICS
1B01 STA – Introductory Statistics**

Time : 3 Hours

Max. Marks : 48

Instruction : Use of calculators and Statistical tables are permitted.

PART – A

Answer all questions. Each question carries one mark. (6×1=6)

- Define ordinal scale.
- Define frequency polygon.
- Define Median.
- Define mean deviation about median.
- Define skewness.
- Write the expression for Marshal-Edgeworth index number.

PART – B

(Short Answer Questions)

Answer any 7 questions. Each question carries 2 marks. (7×2=14)

- Define an Ogive and briefly explain the steps in constructing an ogive.
- Obtain the median for the following data :

Height in cms :	160	156	173	184	178	180	163	164	171
Frequency :	38	12	38	10	36	27	23	10	16

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- Calculate Karl Pearson's coefficient of correlation for the following data :

X :	7	8	9	6	5
Y :	8	6	7	9	10

- The AM of marks in statistics for 100 students was found to be 75. It was later found that a mark of 50 of a student was misread as 15 and 20 was misread as 30. Find the mean after correction.

- Given mean = 39.72, variance = 97.8. Third central moment = 114.18 and fourth central moment = 28396.14. Find the skewness and kurtosis also comment the nature of the distribution.

- Differentiate between classification and tabulation.

- Calculate Spearman's rank correlation for the data given below :

Ranks in English :	1	2	3	4	5	6	7	8	9	10
Ranks in Maths :	8	3	1	7	9	4	2	6	5	10

- What is an index number ? What are the tests prescribed for a good index number ?

- What are the desirable properties of base period while constructing index number ?

PART – C

(Short Essay Questions)

Answer any 4 questions. Each question carries 4 marks : (4×4=16)

- The following table shows some data collected for the regions of a country :

Region	No. of inhabitants (in million)	Average monthly income (Rs.)
A	10	8,500
B	5	6,200
C	18	7,300

Obtain the overall average for the three regions taken together.

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PART – D

(Essay Questions)

Answer any 2 questions. Each question carries 6 marks : (2×6=12)

- Draw the ogives and hence determine the median.

Class :	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency :	8	32	142	216	240	206	143	13

- a) Define correlation.

b) What are the different kinds of correlation ?

c) What are the methods of studying correlation ?

- i) For the frequency distribution given below, calculate the coefficient of skewness based on quartiles.

Annual sales (in '000)	No. of firms
Less than 20	30
Less than 30	225
Less than 40	465
Less than 50	580
Less than 60	634
Less than 70	644
Less than 80	650
Less than 90	665
Less than 100	680

- ii) Karl Pearson's coefficient of skewness of distribution is 0.32, its standard deviation is 6.5 and mean is 29.6. Find the mode of the distribution.

- Construct the cost of living index for the year 1982.

Item	A	B	C	D	E
Unit	Kg.	Litre	Dozen	Kg.	One pair
Price (1980)	0.5	0.6	2.0	0.8	8.0
Price (1982)	0.75	0.75	2.4	1.0	10.0
Weight	10	25	20	40	5

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- Find the CV of a distribution given that its mean is 120, mode is 123 and Karl Pearson's coefficient of skewness = -0.3.

- For a distribution the mean is 10, variance is 16 and skewness is 1. Obtain the first three moments about origin.

- Calculate MD about mean of 10 20 18 11 21.

- The table given below gives the number of companies belonging to the area A and B according to the profit earned by them. Draw Lorenz curves in the same graph and interpret the result.

Profit earned in (Rs. '000)	No. of companies	
	Area A	Area B
6	6	2
25	11	38
60	13	52
84	14	28
105	15	38
150	17	26
170	10	12
400	14	4

- From the following data compute Price Index using (i) simple aggregate index number, (ii) simple average of price relative index number.

Commodity	Base Year Price (P ₀)	Current Year Price (P ₁)
A	100	120
B	230	250
C	80	85