



K25U 1339

Reg. No. :

Name :

**II Semester B.Sc. Degree (C.B.C.S.S. – OBE – Supplementary/
Improvement) Examination, April 2025
(2019 to 2023 Admissions)**

**COMPLEMENTARY ELECTIVE COURSE IN STATISTICS
2C02STA(G&P) : Statistical Methods**

Time : 3 Hours

Max. Marks : 40

Instruction : Use of calculators and statistical tables are **permitted**.

PART – A

Answer **all** questions. **Each** carries **1** mark.

(6×1=6)

1. What is the range of values for the correlation coefficient ?
2. What do you mean by correlation ?
3. The two regression coefficients are 0.6 and 0.3, then what is the value of correlation coefficient ?
4. Define simple index number.
5. Write down any two uses of time series.
6. Write any two demerits of Crude death rate.

PART – B

Answer **any 6** questions. **Each** carries **2** marks.

(6×2=12)

7. Explain positive and negative correlation using scatter diagram.
8. Explain regression lines.
9. Explain any one test for a good index number.
10. Write a short note on secular trend.

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11. How do you calculate sex ratio ?
12. Write down the formula for computing Spearman's rank correlation when the observations having ties.
13. Explain various sources of vital statistics.
14. Define Fisher's Index number.

PART – C

Answer **any 4** questions. **Each** carries **3** marks.

(4×3=12)

15. Explain Karl Pearson's correlation coefficient.
16. The two regression lines are $3X + 12Y = 19$, $9X + 3Y = 46$. Using these equations find the correlation coefficient.
17. Explain the concept of
 - i) Cyclical variation and
 - ii) Irregular variation in the time series.
18. Define
 - i) Age Specific Death Rate
 - ii) Total Fertility Rate and
 - iii) Gross Reproduction Rate.
19. Show that correlation coefficient is independent of change of origin and scale.
20. Describe the semi average method of measuring trend in time series data.

PART – D

Answer **any 2** questions. **Each** carries **5** marks.

(2×5=10)

21. Consider the following bivariate data set (X, Y)

X	1	3	4	6	8	9	11	14
Y	1	2	4	4	5	7	8	9

- i) Calculate regression coefficients.
- ii) Using regression coefficients, obtain correlation coefficient.
- iii) Fit a regression line of Y on X.
- iv) Predict the value of Y when X = 20.



22. Calculate the Karl Pearson's coefficient of correlation for the following data.

X	1	3	4	5	7	8	10
Y	2	6	8	10	14	16	20

23. Calculate Laspeyres's and Paasche's index numbers for the following data.

Commodity	p₀	q₀	p₁	q₁
A	10	50	12	60
B	15	30	18	40
C	20	25	25	30

24. Fit a straight-line trend for the following data. Estimate the value of 2018.

Year	2011	2012	2013	2014	2015	2016	2017
Production of steel (in 1000 tonnes)	80	90	92	83	94	99	92