Reg. No. : ....

Name : ....

II Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 Admission Onwards)
COMPLEMENTARY ELECTIVE COURSE IN STATISTICS
2C02STA (G&P) : Statistical Methods

Time : 3 Hours

Max. Marks : 40

Instructions : Use of calculators and statistical tables are permitted.

PART – A

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

1. X and Y are connected by the relation $X - 2Y + 5 = 0$. Then the correlation between X and Y is +1. State whether it is True or False.

2. When will you use spearman's rank correlation coefficient ?

3. The two regression coefficients are –0.8 and –0.2, then what is the value of correlation coefficient ?

4. Define Index Number.

5. Give an example of time series data.

6. Define Crude Birth Rate.

PART – B

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

7. Define inverse correlation with an example.

8. Do the regression lines intersect each other ? If so at what points the lines intersect ?

9. What do you meant by Price Index Number ?

P.T.O.

10. What are the four components of time series ?

11. Write down any two important sources from which data relating to vital events are gathered.

12. How will you assign ranks when there are ties in the observations ? Illustrate.

13. What is the difference between 'rate' and 'ratio' of vital events ?

14. Write down any two limitations of index numbers.

PART – C

Answer **any 4** questions. **Each** carries 3 marks. (4×3=12)

15. Write down the formula for computing Spearman's rank correlation when the observations having (i) no ties and (ii) ties.

16. The two regression lines are $3X + 2Y = 26$ and $6X + 3Y = 31$. Find the correlation coefficient.

17. Explain the concept of (i) seasonal variations and (ii) irregular variations in time series.

18. Define (i) CDR (ii) TFR (iii) GRR.

19. Do you think that 'uncorrelated variables are independent' ? Justify your answer.

20. Explain the method of fitting linear trend equation $Y = a + bT$ in a 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	2	3	4	5	6	7
Y	9	8	10	12	11	13	14

    i) Calculate regression coefficients.

    ii) Using regression coefficients, obtain correlation coefficient.

    iii) Fit regression line of Y on X.

    iv) Predict the value of Y when X = 15.

22. Find correct correlation coefficient from the following information :

$n = 25$, $\Sigma x = 125$, $\Sigma x^2 = 650$, $\Sigma y = 100$, $\Sigma y^2 = 460$, $\Sigma xy = 508$. It was observed that two pairs of values of (x, y) were copied as $(6, 14)$ and $(8, 6)$ instead of $(8, 12)$ and $(6, 8)$.

23. Calculate Laspeyer's and Paasche's price index numbers from the following data :

Commodity	Price in base year	Price in current year	Quantity in base year	Quantity in current year
A	0.80	0.70	10	11
B	0.85	0.90	8	9
C	1.30	0.80	5	5.5

24. Illustrate with the help of an example to calculate 7 yearly moving averages by taking your own artificial data from 2006 to 2022.