K24U 1639

Reg. No. : .....

Name : .....

Second Semester B.Sc. Degree (CBCSS – OBE-Regular/Supplementary/ Improvement) Examination, April 2024
(2019 Admission Onwards)
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. Define Correlation.
2. 'Two independent variables are uncorrelated'. State whether it is True or False.
3. At what point, the two lines of regression intersect ?
4. Define Index Number.
5. Define Time Series.
6. Define Crude Death Rate.

PART – B

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

7. Define Spearman's rank correlation coefficient.
8. Describe the relation between correlation coefficient and regression coefficient.
9. What do you mean by Quantity Index Number ?
10. Describe additive model in a Time series.

P.T.O.

11. What are the uses of vital statistic ?

12. Enumerate the different types of Correlation.

13. Define vital events with examples.

14. Write down any two uses of Index Numbers.

PART – C

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

15. Explain (i) Scatter diagram (ii) Karl Pearson's correlation coefficient.

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

17. Explain the concept of (i) Secular trend (ii) Irregular variation.

18. Define (i) Crude Birth Rate (ii) Infant Mortality Rate (iii) Net Reproduction Rate.

19. Show that correlation coefficient is independent of change of origin and scale.

20. Describe moving 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	5	7	8	10
Y	2	6	8	10	14	16	20

i) Calculate regression coefficients.

ii) Using regression coefficients, obtain correlation coefficient.

iii) Fit a regression line of X on Y.

iv) Predict the value of X when Y = 24.

22. Compute the coefficient of correlation between X and Y presented in the table given below :

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

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

Commodity	Price in base year (P_0)	Price in current year (P_1)	Quantity in base year (q_0)	Quantity in current year (q_1)
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

24. Using the following data, fit a trend line by method of semi-averages :

Year	1990	1991	1992	1993	1994	1995	1996
Output	700	900	1100	900	1200	1000	1600