



K20U 0486

Reg. No. :

Name :



II Semester B.Sc. Degree CBCSS (OBE) Regular Examination, April 2020
(2019 Admission)

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

Time : 3 Hours

Max. Marks : 40

Instruction : Use of calculators and statistical tables are permitted.

PART – A
(Short answer)

Answer **all 6** questions :

(6×1=6)

1. Explain the term correlation.
2. What do you mean by a scatter diagram ?
3. Define index numbers.
4. Give an example for a time series.
5. What do you mean by secular trend ?
6. What are the events covered under vital statistics ?

PART – B
(Short essay)

Answer **any 6** questions :

(6×2=12)

7. Distinguish between positive and negative correlation.
8. What are the uses of regression analysis ?
9. Derive the relation between correlation coefficient and regression coefficients.
10. How will you construct the index numbers using simple aggregate method ?
What are its demerits ?

P.T.O.



11. What are the different models used in the analysis of a time series ?
12. Explain the importance of time series analysis.
13. Define any two measures of fertility.
14. Briefly explain the uses of vital statistics.

PART – C
(Essay)

Answer **any 4** questions :

(4×3=12)

15. Show that correlation coefficient is independent of change of origin.
16. The coefficient of correlation between two variables x and y is 0.64. The covariance between x and y is 16 and the variance of x is 25. Find the variance of y .
17. The regression lines are $3x + 2y - 26 = 0$ and $6x + y - 31 = 0$. Obtain the regression coefficients and identify the regression line of y on x .
18. Derive the normal equations for fitting a straight line.
19. Briefly explain the construction of cost of living index number.
20. Explain the semi-average method for the measuring trend.

PART – D
(Long essay)

Answer **any 2** questions :

(2×5=10)

21. The following table shows the prices (in Rs.) of coffee and tea. Obtain Spearman's rank correlation coefficient.

Price of coffee	75	88	95	70	60	80	81	50
Price of tea	120	134	150	115	110	140	142	100



22. The following are the total daily expenditure and family size for five households in a town.

Expenditure	250	300	410	450	565
Household size	2	3	4	5	6

Fit a linear regression of expenditure on household size.

23. Compute Laspyre's, Paasche's and Fishers price index numbers from the following data :

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	2	20	5	15
B	4	4	8	5
C	1	10	2	12
D	5	5	10	6

24. Compute general fertility rate, age specific fertility rate and total fertility rate for the data given below :

Age	Female population (in lakhs)	Live births
15 – 19	100	120
20 – 24	200	350
25 – 29	190	330
30 – 34	180	150
35 – 39	120	70
40 – 44	70	33