K21U 6817

Reg. No. : .....

Name : .....

I Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, November 2021
(2019 Admission Onwards)
Complementary Elective Course in Statistics (for Mathematics/ Computer Science)
1C01STA : BASIC STATISTICS

Time : 3 Hours

Max. Marks : 40

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

PART – A
(Short Answer)

Answer **all** questions : **(6×1=6)**

1. Give any two sources of secondary data.
2. Obtain the variance of first n natural numbers.
3. Give any two measures of skewness.
4. Define coefficient of quartile deviation.
5. Write the normal equation for the straight line $y = a + bx$.
6. Define rank correlation.

PART – B
(Short Essay)

Answer **any 6** questions : **(6×2=12)**

7. Distinguish between census and sample survey method.
8. What are the two methods of sampling ?
9. What are the desirable properties of a good average ?
10. Obtain the HM of 2, 4, 8, 16 and 32.
11. Differentiate between absolute and relative measures of dispersion.
12. Define multiple correlation.
13. Define regression coefficients. How they are related to correlation coefficient ?
14. Define the terms 'base year' and 'current year'.

P.T.O.

PART – C
(Essay)

Answer **any 4** questions : (4×3=12)

15. For a distribution, the mean is 10, variance is 16, $\gamma_1 = +1$ and $\beta_2 = 4$. Obtain the first four moments about origin.

16. Explain skewness and kurtosis. How they can be measured ?

17. Show that the correlation is invariant under linear transformations.

18. Why there are two regression lines ?

19. Fit a trend line by the method of least squares to the following data and obtain the trend values :

Year :	1991	1992	1993	1994	1995	1996	1997
Sales (1,000 Rs.) :	80	90	92	83	94	99	92

20. Define index numbers. Give the formula for Laspeyer's index number.

PART – D
(Long Essay)

Answer **any 2** questions : (2×5=10)

21. Explain any two methods of selecting simple random sample from a finite population.

22. The first four moments of a distribution about the value 4 are respectively – 1.5, 17, – 30 and 108. Find the nature of skewness and kurtosis of the data.

23. Find the correlation coefficient of the following data :

X :	65	66	67	67	68	69	70	72
Y :	67	68	65	68	72	72	69	71

24. Calculate the Fisher's ideal index number from the following data :

Commodity	**1990**		**1992**	
	Price	**Quantity**	**Price**	**Quantity**
A	4	20	10	15
B	8	4	16	5
C	2	10	4	12
D	10	5	20	6