K24U 4036

Reg. No. : .....

Name : .....

First Semester B.Sc. Statistics/B.Sc. Computer Science with AI and ML Degree (C.B.C.S.S. – OBE-Supplementary/Improvement) Examination, November 2024
(2019 to 2023 Admission)
Complementary Elective Course
1C01 STA : BASIC STATISTICS

Time : 3 Hours Max. Marks : 40

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

PART – A

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

1. Write an example for nominal scale of measurement.
2. Name any two sources of secondary data.
3. Define skewness.
4. Define simple correlation between two variables X and Y.
5. Write the expression for finding Fisher's Index number.
6. Explain Secular Trend.

PART – B

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

7. Differentiate simple random sampling with and without replacement with suitable examples.
8. Define absolute and relative measures of dispersion. Also write the expression for finding coefficient of variation.

P.T.O.

9. The first three moments of distribution about the point 7 are 3, 11 and 15 respectively. Obtain mean and variance.

10. Find the Standard Deviation of natural numbers from 1 to 15.

11. If two regression lines are $3X + 12Y = 19$ and $3Y + 9X = 46$. Find $\bar{X}$, $\bar{Y}$ and r_{xy}.

12. Explain Partial and Multiple correlations.

13. Define time series. Discuss its main components.

14. Compute price index numbers for the following data by Laspeyre's method.

	Commodity A		Commodity B		Commodity C	
	Price	**Quantity**	**Price**	**Quantity**	**Price**	**Quantity**
1980	4	50	3	10	2	5
1985	10	45	6	8	3	4

Base year : 1980

PART – C

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

15. Explain any three methods of sampling.

16. Differentiate between Mean Deviation and Standard Deviation.

17. The following data give the time in months from hire to promotion to manager for a random sample of 25 software engineers from all software engineers employed by a large telecommunications firm.

5 7 229 453 12 14 18 14 14 483 22 21
25 23 24 34 37 34 49 64 47 67 69 192 125

Calculate the mean, median, mode.

18. Calculate the correlation coefficient for the following heights (in inches) of fathers (X) and their sons (Y).

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

19. For the following data compute the index number of prices for 1993 on the basis of 1990 from the data given below.

Commodities	Weights	Price in 1990	Price in 1993
A	40	16	20
B	25	40	60
C	5	2	3
D	20	5	7
E	10	2	4

20. Calculate 3 yearly moving average for the following data from 2005 to 2013.

Year :	2005	2006	2007	2008	2009	2010	2011	2012	2013
Production (in tons) :	45	40	42	46	52	56	61	64	69

PART – D

Essay questions. Answer **any 2** questions. **Each** question carries **5** marks. **(2×5=10)**

21. State the advantages of sampling over complete enumeration. Describe the main steps involved in conducting a sample survey.

22. Calculate the first four moments of the following distribution about mean and hence find skewness and Kurtosis of the data.

X :	0	1	2	3	4	5	6	7	8
F :	1	8	28	56	70	56	28	8	1

23. a) Define correlation.

    b) What are the different kinds of correlation ?

    c) What are the methods of studying correlation ?

24. Fit a straight-line trend of the following data by least square method. Also find the estimated production for the year 1997.

Year :	1989	1990	1991	1992	1993	1994	1995	1996
Production :	12	13	13	16	19	23	21	23

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