

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2026

(FYUGP)

(Regular/Supplementary/Improvement)

CC24USTA2MN110 - DATA ANALYSIS FOUNDATIONS IN STATISTICS

(Statistics - Minor Course)

(2024 Admission onwards)

Time: 2.0 Hours

Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)Answer *all* questions. Each question carries 3 marks.

1. Explain irregular variation of time series with examples. [Level:2] [CO1]
2. Explain different weighted index numbers. [Level:2] [CO2]
3. Explain the properties of regression coefficients. [Level:2] [CO3]
4. Explain about the regression coefficients. [Level:2] [CO3]
5. Describe graphic method of studying correlation. [Level:2] [CO3]
6. Explain positive and negative correlation with example. [Level:2] [CO3]
7. Describe different methods of studying correlation. [Level:2] [CO3]
8. Provide R code for constructing a vector y with the values (25, 79, 12, 98, 36,) and also sort the vector in descending order. [Level:3] [CO4]
9. Provide the R code to plot a bar diagram showing the sales of different fruits in a market. [Level:3] [CO4]
Use the following sales data (in kilograms): Apples: 50, Bananas: 75, Oranges: 30, Grapes: 40.
10. Provide the R code for determining the mean of the data : 28,42,12,98,36,64. [Level:3] [CO4]

(Ceiling: 24 Marks)**Part B** (Paragraph questions/Problem)Answer *all* questions. Each question carries 6 marks.

11. Explain different methods for finding measurement of trend in time series analysis. [Level:2] [CO1]

12. Determine the trend values by finding 4 yearly moving averages for the following time series. also graph the observed values and the trend values [Level:3] [CO1]

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996
Value	103	104	107	101	102	104	105	99	100

13. Calculate Fisher's index number for the following data. [Level:3] [CO2]

Commodity	Base Year		Current year	
	Price	Quantity	Price	Quantity
A	4	10	7	8
B	5	8	9	6
C	6	15	8	12
D	2	5	2	6

14. Calculate simple aggregative index number and simple average of price relative index number from the data given below. [Level:3] [CO2]

Commodities	Price in 2000	Price in 2005
A	20	25
B	30	30
C	10	15
D	25	35
E	40	45
F	50	55

15. Demonstrate time reversal test? With the help of the following data show that Fisher's index satisfy this test. [Level:3] [CO2]

Commodity	Base Year		Current year	
	Price	Quantity	Price	Quantity
A	4	50	10	40
B	2	10	8	5
C	3	5	7	5

16. Compute rank correlation for the following data. The rankings of 10 students in two subjects A and B are as follows. [Level:3] [CO3]

A	3	5	8	4	7	10	2	1	6	9
B	6	4	9	8	1	2	3	10	5	7

17. Compute Spearman's rank correlation for the following data. The marks of 10 students in two subjects Maths and Statistics are as follows. [Level:3] [CO3]

Maths	33	56	50	65	44	38	44	50	15	26
Statistics	50	35	70	25	35	58	75	60	55	26

18. Calculate Karl Pearson correlation coefficient from the following data and interpret the result [Level:3] [CO3]

X	24	20	18	17	15	10	8	6	4	12
Y	13	9	12	20	11	16	5	2	7	1

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

19. Draw a graph of observed values and the trend values from the following data. Fit a straight line trend for the following data by the method of least squares and also estimate the price in the year 2005 [Level:3] [CO1]

Year	1999	2000	2001	2002	2003	2004
Price	100	107	128	140	181	192

20. Determine the two regression equations. Also find the mostly likely marks in Statistics when the marks in Economics is 30 [Level:3] [CO3]

Marks in Economics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	43	46	49	41	36	32	31	30	33	39

(1 × 10 = 10 Marks)
