Reg No:.....
Name :.....

K25FY2479 C

Second Semester FYUGP Statistics Examination
APRIL 2025 (2024 Admission onwards)
KU2DSCSTA133 (TIME SERIES AND INDEX NUMBERS)
(DATE OF EXAM: 2-5-2025)

Time : 120 min

Maximum Marks : 70

Part A (Answer any 6 questions. Each carries 3 marks)

1. Define models of time series. 3

2. List out the Uses of time series analysis. 3

3. Explain semi average method. In what way, it is better than freehand methods? 3

4. Explain various measures of trend. 3

5. Write the normal equations for fitting the quadratic from $y = ax^2 + bx + c$. 3

6. What is the difference between weighted and unweighted index numbers? 3

7. Explain time reversal test. 3

8. What do you mean by base shifting? 3

Part B (Answer any 4 questions. Each carries 6 marks)

9. Fit a trendline to the following data by the method of semiaverage.

Year	2000	2001	2002	2003	2004	2005	2006
Sales	105	115	120	100	110	125	135

6

10. From the following data, obtain the trend equation using method of least squares. $\sum x = 15$, $\sum y = 673$, $\sum x^2 = 142$, $\sum xy = 362$ and $n = 60$. 6

11. Compare the semi-averages method with the moving average method. Which one is more effective and why? 6

12. From the following, construct Fisher's ideal index number

Commodity	Price 2004	Price 2005	Price 2004	Price 2005
A	8	10	20	30
B	12	15	10	10
C	6	8	16	20
D	4	6	8	10

6

13. What is the difference between price and quantity index numbers? 6

14. Calculate Fisher's index from the following data and verify that it satisfies time reversal test.

Commodity	1989		1991	
	Price	Quantity	Price	Quantity
A	14	32	12	52
B	24	37	11	33
C	17	21	8	44
D	12	27	10	37

6

Part C (Answer any 2 question(s). Each carries 14 marks)

15. Discuss and explain the problems involved in the construction of index numbers. 14

16. Explain the meaning, uses and limitations of index numbers. 14

17. Explain time series and its components. 14