QP CODE: 25020251

Reg No : .....

Name : .....

B.A DEGREE (CBCS)) REGULAR/ IMPROVEMENT/ REAPPEARANCE / MERCY CHANCE EXAMINATIONS, FEBRUARY 2025

Fourth Semester

Complementary Course - ST4CMT52 - QUANTITATIVE TECHNIQUES FOR ECONOMIC ANALYSIS II

(Common for B.A Economics Model II Foreign Trade, B.A Economics Model II Insurance, B.A History Model II Forestry and Environmental History)

2017 Admission Onwards

D19B42CF

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Define multiplicative models in time series.
2. What is meant by secular trend?
3. Mention any two demerits of moving average method in time series.
4. Define Fisher's Index number.
5. Name the two methods for measuring the consumer price index numbers.
6. Find the first order derivative of $y = (x + 4)(x - 8)$
7. Define a triangular matrix
8. Give example of a row matrix of order 1* 4 and column matrix of order 3*1.
9. Define relative frequency approach of probability.
10. State the multiplication theorem of probability.
11. Four coins are tossed simultaneously. What is the probability of getting two heads?

12. From a pack of 52 cards, two cards are drawn at random in succession without replacement. Find the probability that first card is a king and second card is a queen?

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Explain the importance of time series analysis.
14. How the study of seasonal variations in time series helpful for business problems ?
15. What are the uses and limitations of index numbers?
16. Define factor reversal test. Examine whether Laspeyre's and Paasche's index numbers satisfy this test.
17. What are the methods for construction of Index numbers?
18. Explain Venn diagram.
19. Define relation. If X= {1,2,3} , Y ={1,2,3,4,5,6} and X is related to Y on rule Y =2X. find Domain, Range, Relations and Image set
20. Explain conditional probability. How is it calculated?
21. State the properties of normal distribution.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. 1) Explain the method of semi average in finding trend
    2) Apply the method of semi average for determining the trend

year	2001	2002	2003	2004	2005	2006	2007
value	12	15	20	18	25	24	28

23. If A= {a,b,c,d,e} , B= {a,e,i,o,u} , C= {1,2,3,4} and D= {-1,0,1}. Find 1. AUB 2. AUC 3. C ∩ D 4. A ∩C 5. A- B 6. B- A 7. C- A 8. D-C 9. A U ø 10. A∩ ø

24. Find inverse of matrix given below if it exists:

a. $\begin{bmatrix} 0 & 2 & 4 \\ 2 & 4 & 6 \\ 6 & 2 & 2 \end{bmatrix}$

b. $\begin{bmatrix} 4 & 2 & 4 \\ 2 & 0 & 2 \\ 8 & 2 & 8 \end{bmatrix}$

c. $\begin{bmatrix} 2 & 2 & 2 \\ 4 & 4 & 6 \\ 2 & 8 & 18 \end{bmatrix}$

25. Five hundred families each having 4 children were taken as sample. If the probability of a child having boy is 0.5, in how many families would yoy expect to have
(i) exactly one boy (ii) exactly two girls

(2×15=30)