STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600086
(For candidates admitted from the academic year 2019 – 2020)

SUBJECT CODE: : 19EC/AC/MM25

B.A. DEGREE EXAMINATION, MAY 2021
BRANCH IV – ECONOMICS
END SEMESTER EXAMINATION

COURSE: ALLIED CORE **MAX. MARKS: 50**
PAPER: MATHEMATICAL METHODS FOR ECONOMICS
TIME: 1 ½ HOURS

SECTION – A **(5 x 2 = 10)**

ANSWER ANY FIVE OUT OF SIX QUESTIONS.

1. If f(x) =ax +b, find the derivative of xf(x).
2. Of what type is the demand curve $p = \frac{a}{x+b} + c, where\ a, b, c$ are positive constants?
3. Find $\lim_{x\to\infty} \frac{4x+8}{3x-7}$
4. State the Hawkins Simon conditions.
5. Define a matrix.
6. Find the equation of a straight line whose intercept on the X axis is three times its intercept on the Y axis and which passes through the point (-1, 3).

SECTION – B

ANSWER ANY TWO OUT OF THREE QUESTIONS (2 x 10 = 20)

7. The production function of a firm is given by Q = 8LK-L^2 -K^2. Find the MP of labour and capital and check whether it satisfies the Euler's theorem.

8. Outline the properties of matrix multiplication with suitable examples.

9. The total cost is given by $C = 5000 + 1000q - 500q^2 + \frac{2}{3}q^3$.
    a. Find the MC function
    b. What is the slope of the MC curve?
    c. At what value of q does the MC equal AVC?

SECTION – C

ANSWER ANY ONE OUT OF TWO QUESTIONS (1 x 20 =20)

10. Obtain the inverse of the matrix $A = \begin{matrix} 2 & 4 & -1 \\ 3 & 1 & 2 \\ 1 & 3 & -3 \end{matrix}$ and hence solve the following system of equations 2x +4y -z =9 , 3x +y+2z = 7 and x+3y-3z =4.

11.

a. A sofa set manufacturer can manufacture x sofa sets per week at a total cost of Rs $\frac{x^2}{2} + 3x + 100$. How many sets per week should he manufacture for maximum monopoly revenue, when the demand law of his product is $x = 10\sqrt{25 - p}$ sets per week?

b. State the conditions for maxima and minima.

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