LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.A. DEGREE EXAMINATION – **ECONOMICS**

FIRST SEMESTER – APRIL 2017

16UEC1MC02- MATHEMATICS FOR ECONOMICS

Date: 21-04-2017   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART- A

Answer any FIVE questions   **5x4=20 Marks**

1. Define a Linear function.

2. Draw a graph and identify the slope and the intercept.

3. If

$$A= \begin{pmatrix} 1 & 5 \\ 2 & 6 \\ 3 & 6 \end{pmatrix} \quad B= \begin{pmatrix} 5 & 6 & 2 \\ 8 & 1 & 0 \end{pmatrix} \quad \text{and} \quad C= \begin{pmatrix} 1 & 2 \\ 7 & 8 \\ 9 & 0 \end{pmatrix}$$

Find A+B+C=?

4. Define Differentiation.

5. If $y= (2x^2+9)(x^2+3x)$ Find dy/dx.

6. Compute Average cost and Marginal cost for the Total cost function

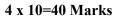$C= 8x^3+3x^2-6x+3$.

7. If $y=5x^4+2x^3$, Find dy/dx, d^2y/dx^2.

PART- B

Answer any FOUR questions

Each answer should not exceed 300 words   **4 x 10=40 Marks**

8. Solve the equation $12x^3-30x^2+12x = 0$.

9. State the properties of determinants.

10. Find the rank of a matrix

$$A= \begin{pmatrix} 2 & 3 & 5 & 1 \\ 1 & 2 & 3 & 2 \\ 1 & 3 & 4 & 5 \end{pmatrix}$$

11. State the various rules of differentiation.

12. Derive the relationship between AC and MC.

13. Evaluate dy/dx for $y = x+1/x-1$.

14. Find the Maxima and Minima of the function $y=2x^3-6x$.

PART- C

Answer any TWO questions

Each answer should not exceed 1200 words   **2 x 20=40Marks**

15. Solve the following equations by using Cramer's Rule.

$$2X_1+3X_2 = 13$$

$$X_1+7X_2 = 23$$

16. Find the elasticity of demand and MR at p=1, if the demand function is

given by Q=7-2p.

17. The supply function for a commodity $P=x^2-x+5$ where x denotes supply. Find the producer's surplus

when the price is Rs 11.

18. Explain the various types of functions and the procedure for solving the functions.

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