LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **APRIL 2018**

17/16UEC1MC02– MATHEMATICS FOR ECONOMICS

Date: 26-04-2018   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART-A

Answer any FIVE questions in about 75 words each   **5x4=20**

1. Solve $8x^2-22x-21=0$

2. Draw the graph of $3x+2y=11$

3. Find the value of the determinant

$$\begin{pmatrix} 1 & 18 & 72 \\ 2 & 40 & 148 \\ 2 & 45 & 150 \end{pmatrix}$$

4. Define Differentiation.

5. Explain Definite Integral.

6. Write short note on optimization.

7. Find the Maximum and Minimum values of the function
$$\frac{2}{3}x^3 + \frac{1}{2}x^2 - 6x + 8$$

PART-B

Answer any FOUR questions in about 300 words each   **4 x10=40**

8. Derive the following relationships between AC and MC
   i)   when AC falls, MC < AC
   ii)   when AC rises, MC > AC

9. For a commodity, the demand law is $3p+2x=27$ and supply law is $6p-2x=9$.
   Obtain the equilibrium price.

10. Let

$$A=\begin{pmatrix} 2 & -3 & 1 \\ 4 & 2 & 3 \end{pmatrix} \quad \text{and} \quad B=\begin{pmatrix} 3 & -2 & 4 \\ 1 & 3 & -5 \end{pmatrix}$$

Show that $(A+B)'= A'+B'$.

11. State the various rules of Differentiation.

12. Find the first and second order partial derivatives for $Z=3x^3-2x^2y+2xy^2+y^3+8$.

13. Explain the economic applications of maximization and minimization of a function.

14. Derive the relationship between AC and MC.

PART-C

Answer any TWO questions in about 900 words each **2x20=40**

15. Solve the following equation by cramer's rule.

   $2x-3y=3$ and $4x-y=11$.

16. Let

   i. $y=(3x^2+1)$ (x^3+2x), find dy/dx.

   ii. Find the differential Coefficient of $\dfrac{x^2-1}{x^2+1}$ w.r.to x and

   iii. $(3x^3+5x^2+8)^3$ w.r.to x.

17. The demand function for a commodity is $p=20-3q$ and the supply function
   on the market is $p=2q$. Find the Consumer's surplus.

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

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