LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **NOVEMBER 2017**

EC 5404 – MATHEMATICS FOR ECONOMICS

Date: 13-11-2017 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART - A

Answer any <u>FIVE</u> Questions in about 75 words each **5X4=20**

1. Define integral calculus.
2. What is meant by point of inflexion?
3. Find dy / dx, if $X = at^4$ and $Y = 4at$.
4. What is meant by Homogeneous function?
5. State few applications of differentiation and integration in the field of economics.
6. Write a short note on the relationship between AC and MC.
7. If $Z = X^3 + Y^3 - 6XY$ find the second order partial derivative.

PART – B

Answer any <u>FOUR</u> Questions in about 150 words each **4X10=40**

8. What is meant by Function and Explain the different functions in economics.
9. State and prove Euler's theorem.
10. Evaluate $\int (8x^3-3x^2+x-1)\, dx$.
11. Find the First, Second and third order derivative if $Y = 4x^5 + 3x + 6$.
12. Find the area between the curve $Y = x^5$ between X = 2 and Y = 3.
13. Find out i<u>on</u> $U = 7x^5 \frac{+1}{x^4} - 4x^{-3} - 2x^2 - x + 9$.
14. Find the second order partial derivation of the function $U = x^3 + 3x^2y + y^3$.

PART – C

Answer any <u>TWO</u> Questions in about 900 words each **2X20=40**

15. (a) The demand function for a commodity P = 30 – 2 D. The supply function P = 3D. Find consumer's surplus assuming perfect competition.

(b) The supply function for a commodity $P = 2 + D^2$. Find producer's surplus when price is Rs.18.

16. a) For the total utility function U = (x + 7) (3x + 9y), find marginal utilities of x and y at x = 1 and y = 2.

b) For the utility Function $u= x^2 + y^2 / x^3 + y^3$ Compute Marginal utilities of x and y.

17. Find the Maxima and Minima of the following functions. a. $y = 2x^3 – 3x^2 – 36x +10$

b. $y = x^2 – 4x – 5$.

18. Integrate the following function: a. $\int 4x^2 (x^3+5)^3 dx$ b. $\int 21x^6 (x^7+1)^2 dx$

c. $\int 9x^4 (x^5+7)^8 dx$ d. $\int 5x^3 (x^3+3)^4 dx$

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