**SAINTGITS COLLEGE OF APPLIED SCIENCES, PATHAMUTTOM P.O, KOTTAYAM**

**FIRST INTERNAL EXAM [JANUARY-2016]**

**B.A CORPORATE ECONOMICS**

**MATHEMATICS FOR ECONOMICS II**

Time: 2 hours Maximum: 50 Marks

**Section A**

*Answer* ***all*** *questions. Each question carries* ***1 mark****.*

1. Find the derivative of $\frac{7}{x^{7}}$

2. Find the derivative of $x^{2}-3x+2$

3. Write the product rule of differentiation.

4. Write the function of a function rule.

 5. If y=$\frac{x^{2}-2}{3}$find $\frac{dx}{dy}$ **(5×1=5)**

**Section B**

*Answer any* ***five*** *questions . Each question carries* ***2 marks****.*

6. Find the derivative of (x3+1) (1+x).

7. If y=$\frac{x^{2}}{e^{x}}$

8. Total revenue function of a firm is given by R=21x-x2.Find the marginal revenue when 10 units are sold.

9. If y=2+x5, find the fourth derivative of y with respect to x

10. Differentiate $x^{2}+1 $ with respect to $x^{2}-1$

**(5×2=10)**

**Section C**

*Answer any* ***five*** *questions. Each question carries* ***4 marks****.*

11. If $x^{4}+y^{5}=3x^{2}y^{2}$ , find $\frac{dy}{dx}$.

12. Find y1 and y2 if y=x2logx

13. Differentiate $x^{x}$

14. Find $\frac{dy}{dx}$ if y=$\frac{x^{2}-1}{x^{2}+1}$

 15. The demand law for sugar is p=15-$\frac{1}{5}$x .Find the marginal revenue function .Represent graphically. When is MR zero?

16. If $x^{2}+y^{2}=9, $find $\frac{dy}{dx}.$

17. If $y=\frac{1}{x^{2}}$ show that $x^{4}y\_{2}+x^{3}y\_{1}-4=0$

 **(5×4=20)**

**Section D**

*Answer any* ***one*** *question. Each question carries* ***15 marks****.*

18. (i)If y=$x^{2}logx $ ,prove that $x^{2}y\_{2}-xy\_{1}=2x^{2}$

 (ii)Find the derivative of $\frac{2\sqrt{x}}{\left(x+1\right)(x+2)}$

19. (i)If $x^{2}+2hxy+by^{2}=0$ ,find $\frac{dy}{dx}$

 (ii)Find the derivative of $\frac{\left(x-1\right)(x-5)}{\left(x+2\right)(x+1)}$

**(1×15=15)**