PARUL UNIVERSITY FACULTY OF MANAGEMENT BBA Internal Examination

Semester:2nd sem

Subject Code: 0601205

Subject Name: Business Mathematics-II

Date: 31/03/2018 Time: 1hr: 30min Total Marks: 30

Instructions

- 1. All questions are compulsory.
- 2. Figures to the right indicate full marks.
- 3. Make suitable assumptions wherever necessary.
- 4. Start new question on new page.

Q-1(A) Multiple choice type questions:-

(05)

- 1 The Derivative of $f(x) = \frac{1}{x} =$
 - a) $\frac{1}{x^2}$

c) - $\frac{1}{r^2}$.

b) x,

- d) 0
- 2 If $y = 7x^7 + 5x^4 20x + 37$ then at x=1, $\frac{dy}{dx} =$ _____
 - a) 49 .
 - b) 20

- c) 45
- d) 21
- $\lim_{x \to 0} \frac{x^2 + 2x + 5}{x^2 + 3x + 1} = \underline{\qquad}$
 - a) 5
 - b) 3

- c) 4
- d) 1
- When Elasticity of Demand is greater than 1, then the Demand is said to be ____
 - a) Relatively Inelastic Demand
- c) Unitary Elastic Demand
- b) Perfectly Elastic Demand
- d) Relatively Elastic Demand
- For the function $f(x) = x + \frac{1}{x}$, we get $\frac{d^2 f}{dx^2}$ = positive value, then f(x) is _____
 - a) Minimum

c) Zero

b) Maximum

- d) None of these
- B) Define the following. (Each of 1 mark)

(05)

- Find the derivative of $(3x^2-2)(x^2+7)$ with respect to x.
- 2. Define: Unitary Elastic Demand.
- 3. Find the Derivative of 2x+3 using Definition.

- 4. Find the derivative of $y = x^3 + 3^3 + 3^x$ with respect to x.
- 5. If the Demand Function is p = 20-3x then find Marginal Revenue.
- Q.2 Do As Directed: (each of 2.5 marks)

(05)

- Find the Tangent Line and Normal Line of $6x^2+3xy+2y^2+17y-6=0$ at (-1,0)
- B). Check whether the function $f(x) = \begin{cases} 3x + 2, x > 1 \\ 5, x = 1 \end{cases}$ is Continuous or not.
- Q.3 Answer the following questions:-
- A). The demand function of a commodity is x = 20 2p. Calculate the elasticity of Demand when the Price is 2.
- B). Find Maximum and Minimum values of $f(x) = 4x^3 + 19x^2 14x + 3$. (03)
- Q.4 Do As Directed :- (Attempt Any Two)

(10)

- A). Determine for all intervals $f(x) = x^4 8x^2$, where f is Increasing or Decreasing.
- B). If the demand function is p = 20-x and its average cost is Rs. 5 then find Maximum Profit.
- C). The Price of Joggery increases from Rs. 2 per kilogram to Rs. 3 per Kg. and its supply increases from 2000 Kg. to 2500 Kg. Calculate Elasticity of supply.