

Seat No: _____

Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF MANAGEMENT

BBA/MBASummer/Winter 2018 - 19 Examination

Semester: 2

Date: 01/03/2019

Subject Code: 6101155

Time: 2hr: 30min

Subject Name: Business Mathematics-2

Total Marks: 40

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 Fill in the blanks using appropriate choice from the given options.**(05)**

1. $\lim_{x \rightarrow 0} \left(\frac{2^x - 1}{x} \right) =$ _____

- | | |
|------|---------------|
| a) 0 | c) $\log_e 2$ |
| b) 1 | d) ∞ |

2. $\frac{d}{dx} 5e^x =$ _____

- | | |
|-----------|----------|
| a) 0 | c) $2x$ |
| b) $5e^x$ | d) e^x |

3. $\lim_{x \rightarrow 0} \left(\frac{e^x - 1}{x} \right) =$ _____

- | | |
|------|-------|
| a) 0 | c) -1 |
| b) 1 | d) e |

4. $\lim_{n \rightarrow 0} \left(\frac{2n+3}{3n+2} \right) =$ _____

- | | |
|------------------|------------------|
| a) $\frac{3}{2}$ | c) $\frac{2}{3}$ |
| b) 1 | d) 0 |

5. $\frac{d}{dx} 3x =$ _____

- | | |
|------|------|
| a) 0 | c) 1 |
| b) 3 | d) 5 |

Q.2 Solve the following.

1. If $y = x^3 - 2x^2 + 1$, find $\frac{dy}{dx}$.

02

2. $\lim_{x \rightarrow 0} \left(\frac{e^{20x} - 1}{4x} \right)$

02

3. $\lim_{x \rightarrow -1} \left(\frac{3x-4}{8x^2+2x-2} \right)$

02

4. $\frac{d}{dx} (e^x x^2)$

02

5. $\frac{d}{dx} (2\sqrt{x} + x^3 - 3\log x)$

02

Q.3 Attempt any three

1. If $y = (x^3 + e^x)^4$, Then find $\frac{dy}{dx}$.

03

2. $\frac{d}{dx} \left(\frac{e^x}{x} \right)$

03

3. Find the left and right hand limit of the function.

$$f(x) = \begin{cases} 2x + 3, & x \leq 1 \\ 3x - 5, & x > 1 \end{cases}$$

03

4. If $y = x^3 + e^x + \log x$, Then find $\frac{d^2y}{dx^2}$.

03

Q.4 Attempt any Two

1. Solve : $\frac{d}{dx} \log(4x^3 + 3x^2 - x + 1)$

04

2. $\lim_{u \rightarrow 8} \left(\frac{u^2 - 5u - 24}{u - 8} \right)$

04

3. $\frac{d}{dx} (e^x \log(x) + 3x^2 + x - 1)$

04

Q.5 Solve the following.

1. If $y = t^4 + 4e^t + \log t + t$, $x = 3t^6 + e^t$, then find $\frac{dy}{dx}$.

03

OR

If $y = x^x$ then find $\frac{dy}{dx}$.

2. Examine the continuity of the function

05

1. $f(x) = \begin{cases} 2x^2 + 4, & x \leq 1 \\ 2x + 5, & x > 1 \end{cases}$