

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA Summer 2018 - 19 Examination

Semester: 2
 Subject Code: 06101155
 Subject Name: Business Mathematics-ii

Date: 17/04/2019
 Time: 10:30 am to 01:00pm
 Total Marks: 60

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 Do as Directed.

Multiple choice type questions/Fill in the blanks. (Each of 1 mark)

(05)

1. $\lim_{x \rightarrow 0} \left(\frac{6^x - 1}{x} \right) =$ _____

- a) 0
 b) 1
 c) $\log_e 6$
 d) ∞

2. Formula for simple interest is _____

- a) $\frac{P \cdot R \cdot T}{100}$
 b) $\frac{P \cdot T}{100}$
 c) $\frac{P - R \cdot T}{100}$
 d) $\frac{R \cdot T}{100}$

3. $\frac{d}{dx} (u \cdot v) =$ _____

- a) $u \frac{d}{dx} v + v \frac{d}{dx} u$
 b) $u^2 \frac{d}{dx} v + v \frac{d}{dx} u^2$
 c) $u \frac{d}{dx} v - v \frac{d}{dx} u$
 d) $u^2 \frac{d}{dx} v + v \frac{d}{dx} u^2$

4. $\int 4x^3 dx =$ _____

- a) $4x^4 - c$
 b) $x^4 + c$
 c) $2x$
 d) $4x^4$

5. $\lim_{n \rightarrow 2} \left(\frac{1}{n^2} \right) =$ _____

- a) 0
 b) ∞
 c) 0.25
 d) n

B). Fill in the blanks . (Each of 1 mark)

(10)

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

2. $\frac{d}{dx} (5x^3 + 400) =$ _____

3. $\int_1^2 4x^3 dx =$ _____

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

5. If $f(x) = e^x$ then $f(0) =$ _____

6. $\frac{d}{dx} (x \log x) =$ _____

7. $\int x^n dx =$ _____

8. $\frac{d}{dx} (2 + x^3 - 3 \log x) =$ _____

9. If $y = e^x$, then $\frac{d^2y}{dx^2} =$ _____

10. $\frac{d}{dx} \left(\frac{u}{v} \right)$ is = _____

Q.2 Answer the following questions.

A).(i) If $y = t^3 + 4e^t + t$, $x = 3t^4 + 1$, then find $\frac{dy}{dx}$. (03)

(ii) (a) $\lim_{x \rightarrow 4} \left(\frac{x^3 - 5x - 24}{x - 4} \right)$ (b) $\frac{d}{dx} (4e^x \cdot x^3)$ (04)

B).(i) If $y = x^3 + e^x + 1$, Then find $\frac{d^2y}{dx^2}$. (04)

(ii) Solve : $\frac{d}{dx} \log (4x^3 + 3x^2)$ (04)

Q.3 Answer the following questions.

A).(i) Find the equation of tangent and normal lines to the curve $y = 7e^x + 4x^2$ at (0,1). (04)

(ii) Evaluate the definite integral $\int_0^2 (3x^2 + 2x + 1) dx$ (03)

B). (i) If the cost function of an item is $C(x) = 300x - 10x^2 + x^3$. Find the average cost and marginal cost when 6 units are produced. (04)

(ii) Ram took a loan of Rs 20,000 at 10% rate of interest, find the simple interest and compound interest to be paid at the end of 2 years. (04)

Q.4 Attempt any three questions. (Each of 5 mark) (15)

1. $\int e^x x^2 dx$

2. Find the area of a region bounded by $y = 3x^2$, $x = 2$, $x = 3$ and x - axis.

3. Find the maximum and minimum values of function $y = x^3 - 12x$.

4. Examine the continuity of the function

$$f(x) = \begin{cases} x^2 - 2, & x \leq 1 \\ 3x - 4, & x > 1 \end{cases}$$