

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA Summer 2021- 22 Examination

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

Date: 24/05/2022
Time: 10:30 am to 1:00 pm
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.**A).Multiple choice type questions.****(05)**

1. $\lim_{x \rightarrow 0} 2x + 5 =$
 - a) 2
 - b) 5
 - c) 7
 - d) 0
2. If $f''(a) > 0$ then the point "a" is _____
 - a) Minimum Point
 - b) Maximum Point
 - c) Both (a) & (b)
 - d) None of these
3. Integration of marginal revenue function gives _____ function.
 - a) Marginal cost
 - b) Average cost
 - c) Total cost
 - d) Total revenue
4. The simple interest is based on only _____
 - a) Principal amount
 - b) Both (a) & (c)
 - c) Previous interest
 - d) None of these
5. $\int_a^a f(x) dx =$ _____
 - a) 0
 - b) $\frac{1}{x}$
 - c) 1
 - d) -f(x)

B).Define the following.**(05)**

1. Average cost
2. Continuity of a function
3. Revenue
4. Integration by parts
5. Future value

C).Direct questions. (Each of 1 mark)**(05)**

1. If $y = c$ (a constant) then find $\frac{dy}{dx}$
2. S.I. = $\frac{PRN}{100}$ where N is _____
3. Find $\lim_{x \rightarrow 2} \frac{x^3 - 2^3}{x - 2}$
4. If $y = 4x^3 + 5x^2 + 4$ then find $y''(1)$
5. Find $\int_3^6 x^2 dx$

Q.2 Answer the following questions.

- (i) Find $\lim_{x \rightarrow a} \frac{\sqrt{2a-x} - \sqrt{x}}{a-x}$
- A).** (ii) Find $\lim_{n \rightarrow \infty} \frac{1+2+3+\dots+n}{3n^2}$ **(07)**
- (i) Find the derivative of x^2 by using the definition.
- B).** (ii) If $y = (x^2 + 2x + 5)^{10}$ then find $\frac{dy}{dx}$ **(08)**

Q.3 Answer the following questions.

A). Integrate $\frac{x}{(x-1)(x-2)}$ (07)

B). If the demand function of a monopolist is $p=20-x$ and its average cost is Rs. 5, find maximum profit (08)

Q.4 Attempt any two questions. (Each of 7.5 mark) (15)

1. (i) If $y = \frac{x^2 + \log x}{1+x}$ then find $\frac{dy}{dx}$
(ii) If $x = at^2$, $y = 2at$ then find $\frac{dy}{dx}$

2. Evaluate $\int_0^5 \frac{\sqrt{x}}{\sqrt{x} + \sqrt{5-x}} dx$

3. (i) For what value of k the following function is continuous at $x = 2$?

$$f(x) = \begin{cases} \frac{x^2-4}{x-2} & \text{if } x \neq 2 \\ k & \text{if } x = 2 \end{cases}$$

(ii) Find $\lim_{x \rightarrow 0} \frac{2^{4x} - 3^{2x}}{x}$

4. Obtain maximum and minimum values of $y = x^3 - 9x^2 + 24x + 2$.