

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA., Summer 2017-18 Examination

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

Date: 21-05-2018
Time: 10:30AM 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.**A). Multiple choice type questions.****(05)**

1. $\lim_{x \rightarrow 0} \frac{x^3 + 2x + 5}{x^2 + 3x + 1} = \underline{\hspace{2cm}}$

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

2. The derivative of any constant number is ____.

- a) constant number
 b) 1
 c) 0
 d) Not defined

3. The Revenue function R is equals to

- a) xp
 b) $\frac{x}{p}$
 c) xp^2
 d) $\frac{p}{x}$

4. If $y = uv$ then $\frac{dy}{dx}$ is equal to

- a) $u \frac{dv}{dx} - v \frac{du}{dx}$
 b) $u \frac{dv}{dx} + v \frac{du}{dx}$
 c) $u \frac{dv}{dx} + v \frac{du}{dx}$
 d) $u \frac{du}{dx} + v \frac{dv}{dx}$

5. Let P is the principal , R is rate of interest and N is number of years, then simple interest is,

- a) $A(1 + \frac{RN}{100})$
 b) $A + \frac{PRN}{100}$
 c) $P(1 + \frac{RN}{100})$
 d) $\frac{PRN}{100}$

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

1. Annuity
2. Definite integral
3. Profit function
4. Unitary Elastic Demand
5. Continuity

C). Direct questions.**(05)**

1. Give the equation of tangent to a given curve $y = f(x)$.

2. $f(x) = x^3 - 8x^2 + 1$, find $f'(1)$.

3. $\lim_{x \rightarrow 0} \frac{3^{2x} - 1}{x} =$

4. Evaluate $\int_a^b f(x)dx$.

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

Q.2 Answer the following questions.

A). 1. Find $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{x}$ (04)

2. Prove that $f'(0) = 3$ for the function $f(x) = 2x^2 + 3x + 5$. (03)

B).1. Find the tangent line and normal line of $6x^2 + 3xy + 2y^2 + 17y - 6 = 0$ at $(-1, 0)$. (04)

2. Evaluate $\frac{dy}{dx}$ for $x^{\cos x}$. (04)

Q.3 Answer the following questions.

A). 1. Evaluate $\int xe^x dx$. (03)

2. If demand function of monopolist is $p = 20 - x$ and its average cost is Rs 5. Find maximum Profit. (04)

B).1. Find Compound interest on Rs. 25000 at 5% per annum at the end of 2 year. (04)

2. Find $\int (\sqrt{x} + \frac{1}{\sqrt{x}}) dx$ (04)

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

1 Evaluate the $\int \frac{x}{(x-1)(x-2)(x-3)} dx$ by partial fractions.

2 If the demand is $p = 13.5 - \frac{x^2}{200}$, find the demand for maximum revenue and also find price when the revenue is maximum.

3 Evaluate $\frac{dy}{dx}$ for $x = a(u + \sin u)$, $y = a(1 - \cos u)$.

4 Find maximum and minimum values of $y = x^3 + 6x^2 - 15x + 7$.