Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF MANAGEMENT

BBA Winter 2018-19 Examination

Semester: 2 **Date:10/12/2018**
Subject Code: 06101155 **Time: 10:30am to 01:00pm**
Subject Name: Business Maths-II **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 questions **(05)**

1. If $y = u + v$ then $\frac{dy}{dx}$ is equal to

a) $\frac{du}{dx} - \frac{dv}{dx}$ **c)** $u\frac{dv}{dx} - v\frac{du}{dx}$

b) $v\frac{du}{dx} + v\frac{dv}{dx}$ **d)** $\frac{du}{dx} + \frac{dv}{dx}$

2. In which type of Annuity payments are made at beginning of specified period?

a) Ordinary Annuity **c)** Annuity Due
b) Perceptual Annuity **d)** None of these

3. The value of $\lim_{x \to 0} a =$ _____

a) 0 **c)** a
b) $f(a)$ **d)** None of these

4. Average cost $= \frac{c}{x}$, c belongs to

a) Total cost **c)** Number of units
b) Revenue **d)** Profit

5. $\int dx =$ _____

a) $\frac{x}{2} + c$ **c)** $\frac{x^3}{3}$
b) $\frac{x^3}{3} + c$ **d)** $x + c$

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

1. Annuity
2. Marginal Cost
3. Derivative
4. Total Revenue
5. Demand Law

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

1. If $y = a^x$, then $\frac{dy}{dx} =$ _____.
2. $\int [f(x) \pm g(x)]dx =$ _____
3. If $f(x) = x + 1$, find $f'(0)$.

4. $\int_0^1 x\,dx =$ _____

5. Find the value of $\lim_{x\to 2}\dfrac{x^2-4}{x-2}$.

Q.2 Answer the following questions

A).

(i) Evaluate $\lim_{x\to 0}\dfrac{\sqrt{1-x}-\sqrt{1+x}}{x}$ **(04)**

(ii) Find Compound interest on Rs. 25000 at 5% per annum at the end of 2 year. **(03)**

B).

(i) Evaluate $\dfrac{dy}{dx}$ for $x = te^t,\ y = 1+\log t$. **(04)**

(ii) Evaluate $\dfrac{dy}{dx}$ for $y = \sin x^x$. **(04)**

Q.3 Answer the following questions.

A).

(i) If $y = 2e^{3x} + 3e^{-2x}$, then prove that $\dfrac{d^2y}{dx^2} - \dfrac{dy}{dx} - 6y = 0$. **(04)**

(ii) Evaluate $\int x\log x\,dx$ **(03)**

B).

(i) The demand function of a commodity is $x = \dfrac{100-p}{2}$. Find the marginal revenue when the demand is 15 units. **(04)**

(ii) Evaluate the $\int \dfrac{8x^2}{(x^3+2)^3}\,dx$ **(04)**

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

1. The demand function of a monopolist is $x = 60-3p$ and cost function is $C = \dfrac{x^2}{20} + 50$. How many units should he produce to get maximum profit?

2. Evaluate $\int \dfrac{1}{x-x^3}\,dx$ using partial sum

3. The marginal cost of production of a firm is given by $C'(x) = 5 + 0.13x$. Further, the marginal revenue $R'(x) = 18$. Also it is given that $C(0) =$ Rs.120 . Compute the maximum profit.

4. If the demand function of a commodity is $p = \dfrac{7500-x^2}{100}$, find the demand for maximum revenue. Also find price when the revenue is maximum.