

Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics, Margao-Goa
FY BBA, Term-III, End Term Assessment Repeat March 2024
BBCB030 – Business Mathematics 2

Duration: 1 hr. 30 min**Max Marks: 25****Instructions:**

- 1) Start each question on fresh page.
- 2) Figures to the right indicate maximum marks.

Q1. Answer the following:

1. Prove that the function $f: \mathbf{R} \rightarrow \mathbf{R}$, $f(x) = 2x^3 + 9$ is a bijection. **[2 Marks]**
2. Find the derivative of $y = (x^2 - 2x + 3)^{100}$. **[2 Marks]**
3. Find $\int x \cos(x) dx$ **[1 Mark]**

Q2. Attempt the following:**[5x4=20 Marks]**

1. Examine the continuity of f at $x = 5$ if $f(x) = \begin{cases} \frac{x^2-25}{x-5} & x \neq 5 \\ 10 & x = 5 \end{cases}$
2. The demand function p in terms of quantity demanded D is given by $p = 30 + 12D - 4D^2$. Find total revenue, average revenue and marginal revenue when the demand is 4 units.
3. Find the maxima and minima of $f(x) = 2x^3 - 3x^2 + 6$.
4. If the marginal revenue function for a certain product is $MR = 4x^3 + 6x^2 + 10x + 1$. Find the revenue function when $x = 10$.
5. Find the inverse and range of $y = 3x - 7$ given that $y = f(x)$ is a bijection.
