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Daffodil International University

Quiz-2 (Summer-2026)

Student ID: ..... Student Name: .....

Course Code: MAT 101 Course Title: Mathematics I Section: 24-A

Date: 23/07/2026 Full Marks: **15 Marks** Time: **30 min**

Answer all the following questions

Question 1: Compute the derivative $\left(\frac{dy}{dx}\right)$ of the following functions:

i) $y = 2\cos x - 3e^{4x} + 5$ **[1 mark]**

ii) $y = x^{\tan x}$ **[2 marks]**

iii) $y = \frac{\sec x}{1+x^2}$ **[2 marks]**

iv) $y = \ln(\sin x^3)$ **[3 marks]**

Question 2: Compute the derivative $\left(\frac{dy}{dx}\right)$ of the parametric equation $x = \sqrt{t}, y = at^4$. **[3 marks]**

Question 3: Find the intervals on which $f(x) = x^3 - 12x - 5$ is increasing and decreasing. **[4 marks]**

Start Writing from here:

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