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Daffodil International University

Class Test

Student ID : ..... Program : ..... Semester : Spring/ Summer/ Year 2026

Course Code : MAT 102 Course Title : Mathematics II Section : ..... Date : .....

Class Test No. : 01 Signature of the Course Teacher : .....

1. Write down the Euler's theorem for homogeneous function of 4 variable.

If $m = \sin^{-1}\left(\frac{x^5+y^5-z^5}{\sqrt{x-y+z}}\right)$ then show that

$$x\frac{\partial m}{\partial x} + y\frac{\partial m}{\partial y} + z\frac{\partial m}{\partial z} = \frac{9}{2}\tan m$$

[1+5]

2. Evaluate: $\int_0^\infty 13e^{-12x^2}x^9\,dx$ [3]

3. Evaluate: $\int_2^e \int_1^x \int_0^4 7x^3y^2z\,dy\,dz\,dx$ [6]

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