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International University

Class Test

Student ID: 261-15-[redacted] Program: B. Sc. in CSE Semester: Summer Year: 2026

Course Code: MAT102 Course Title: Mathematics-II Section: 71_A Date: 11.06.2026

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

Time: 35 minutes **Total Marks: 15**

1.	Demonstrate the value of $\int_0^\infty 4e^{-\frac{x}{2}} x^{\frac{5}{2}}\, dx$.	[3]
2.	Illustrate Gamma function to calculate, $\int_0^\infty e^{-7x^2} x^4 dx$.	[3]
3.	Identify the value of H_{xy} and H_{zz}, where $H(x, y, z) = ye^{-x} + \sin^2 z - \ln(y + z)$.	[4]
4.	If $u = \sec^{-1}\left(\frac{\sqrt[3]{x^3+y^3+z^3}}{x^2+y^2+z^2}\right)$, use Euler's theorem to find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} + z\frac{\partial u}{\partial z}$.	[5]