TECHNICAL UNIVERSITY OF MOMBASA

Continuous Assessment Test II **COURSE CODE/TITLE: AMA 4105: CALCULUS II**

SEMESTER: II DURATION: 1 HR DATE:…… 2022

1. Evaluate the following definite integrals
   i.) $\int_{-1.5}^{3} \frac{dx}{x^2+4}$ (4 marks)
   ii.) $\int_{2}^{4} \frac{\sqrt{16-x^2}}{x}\, dx$ (4 marks)
   iii.) $\int_{1}^{3} x^3 \ln x\, dx$ (4 marks)
2. Find the area bounded by x axis, y axis, the line $x = 3$ and the curve $y = x^2 + 1$ (5 marks)
3. Find the length of the curve $z = \ln(\cos t)$ from $t = 0$ to $t = \frac{\pi}{4}$ (5 marks)
4. Find the area of a surface generated by $y^2 = 4x$ between the origin and the point (4,4) is rotated about the x-axis. (4 marks)
5. Find the approximate value of $\int_0^1 \frac{5}{1+x^2} dx$ using trapezium rule with five ordinates. (4 marks)

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