Adama Science and Technology University
School of Applied Natural Science
Department of Applied Mathematics
Applied Mathematics I (Math1101) Test

Date: December, 2023
Total Marks: 10%
Time allowed: 1 hr.

Name: _____ **Section:** _____
ID No. _____ **Sign:** _____

1. Let $u = (1, 3, -1)$ and $v = (-2, -4, 3)$.
   - unit vector orthogonal to both u and v = _____
   - area of a triangle with u and v as adjacent sides = _____
   - $\text{proj}u_v$ = _____
   - $\text{proj}v_u$ = _____
2. Find equation of a plane that contains the line $\ell: x + t,\ y = 1, z = -1 + t$ and perpendicular to the plane π; $3x - y + z - 7 = 0$.
3. Find the distance from the point $(-1, 3, 0)$ to the line $\ell: \frac{x-1}{2} = y - 1 = \frac{z+1}{2}$.

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