University of Nebraska-Lincoln
Digital Signal Processing: Quiz 0

August 25, 2025

Name: _____ **Total Points: 10**

Instructions:

- This quiz is **closed-book and individual**.
- Show all work for partial credit.
- Write neatly and clearly.

1. **(3 points)** Consider the discrete-time sequence $x[n] = 2\delta[n+3] - \delta[n+1] + 3\delta[n] + 1.5\delta[n-2]$. Sketch the sequence $x[n]$ on the discrete-time axis.

2. **(3 points)** A discrete-time sinusoidal signal is given as $x[n] = \cos\left(\frac{\pi n}{4}\right)$. Determine whether this sequence is periodic. If it is, find the period N.

3. **(3 points)** Express the unit impulse sequence $\delta[n]$ in terms of the unit step function $u[n]$.

4. **(1 point)** Explain the difference between a continuous-time signal and a discrete-time signal, providing one example of each.