

**University of Nebraska-Lincoln**  
**Digital Signal Processing: Quiz 3**

September 17, 2025

**Name:** \_\_\_\_\_

**Total Points: 10**

1. **(8 points)** A linear time-invariant system has the impulse response  $h[n] = a^n \cos[\frac{\pi n}{2}]$ . Find the output  $y[n]$  for input  $x[n] = \delta[n - n_d]$ .

2. **(2 points)** What is the range of  $a$  ?