

**INFORMATION TECHNOLOGY UNIVERSITY**  
**Department of Electrical Engineering**

**Signal and Systems**  
**Fall 2021**

**Quiz 4**

**Date: 04-02-2022**

**Total Points: 20**

**Name:**

**Roll Number:**

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**Question 1 (10 points) (CLO 4)**

**Briefly answer the following questions in your own words:**

1. Why is sampling used for signals?
2. What the sampling rate should be when the signal frequency is higher.
3. What is aliasing?

**Question 2 (10 points) (CLO 4)**

A real valued signal  $x(t)$  is known to be uniquely determined by its samples when the sampling frequency is  $\omega_s = 10000 \pi$ . For what values of  $\omega$  is  $X(j\omega)$  guaranteed to be zero?