

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

Date: \_\_\_\_\_

**Quiz 5:****Problem 1:**

Are the following true or false?

Question	True	False
The stable pole with the smallest absolute value of its real part is always the dominant pole	<input type="checkbox"/>	<input type="checkbox"/>
Non-minimum phase zeros in a transfer function lead to undershoot in the step response	<input type="checkbox"/>	<input type="checkbox"/>
Stable transfer functions with minimum-phase zeros that are closer to the imaginary axis than all poles lead to overshoot in the step response	<input type="checkbox"/>	<input type="checkbox"/>
The rise time is related to the speed of the step response	<input type="checkbox"/>	<input type="checkbox"/>
The overshoot in the step response depends on the number of poles of the transfer function	<input type="checkbox"/>	<input type="checkbox"/>

**Problem 2:**

The following output response of an LTI system is obtained from the input signal  $u(t) = \sigma(t) \sin(4t)$

$$y(t) = \sigma(t)(e^{-5t} + 18 \sin(4t) - 20 e^{-20t} \sin(10t) + 8 \cos(4t))$$

Write down the steady-state response and the transient response.