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

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

Quiz 10:

## Problem 1:

Are the following true or false?

Question	True	False
The phase of the lag-compensator is smaller than $0^{\circ}$		
The transfer function of the PID-controller has two zeros and one pole		
The PI-controller transfer function can be written as $C(s) = K_P \frac{1 + sT_I}{sT_I}$		
A PD-controller always leads to a zero steady state error		
The Ziegler-Nichols method can be applied to instable plants		

## Problem 2:

The following open loop transfer functions are given (all of them lead to a stable closed loop). Discuss the steady state error for a reference step for the given transfer functions.

$$G_{o1}(s) = \frac{1+5s}{s(1+10s)}$$
$$G_{o2}(s) = \frac{10(1+4s+4s^2)}{s(s-4)(s+2)}$$
$$G_{o3}(s) = \frac{1}{1+s}$$