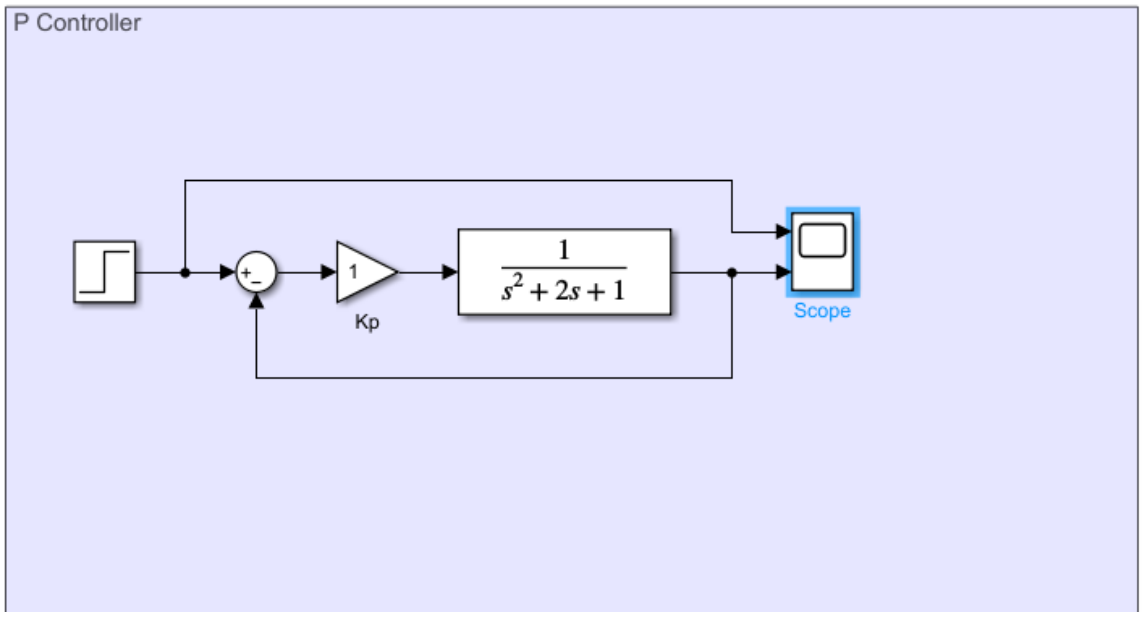
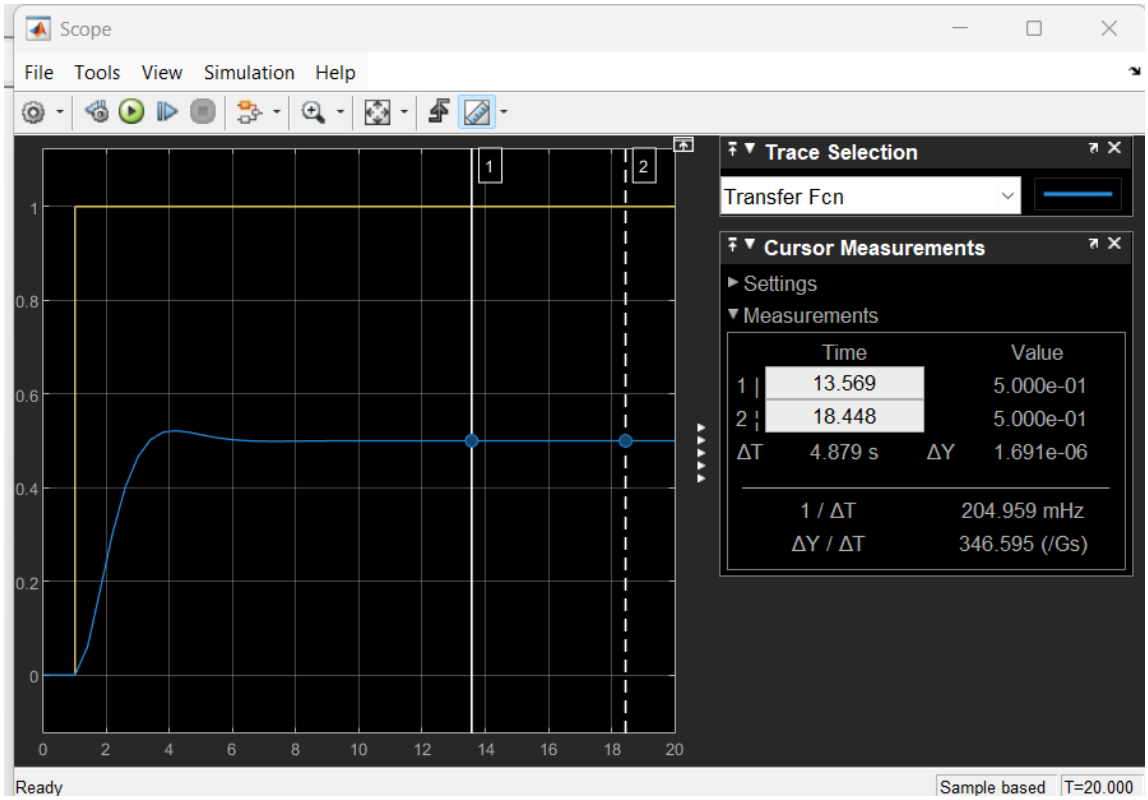
Part 1: P-Controller

1.Reduces the steady state error.

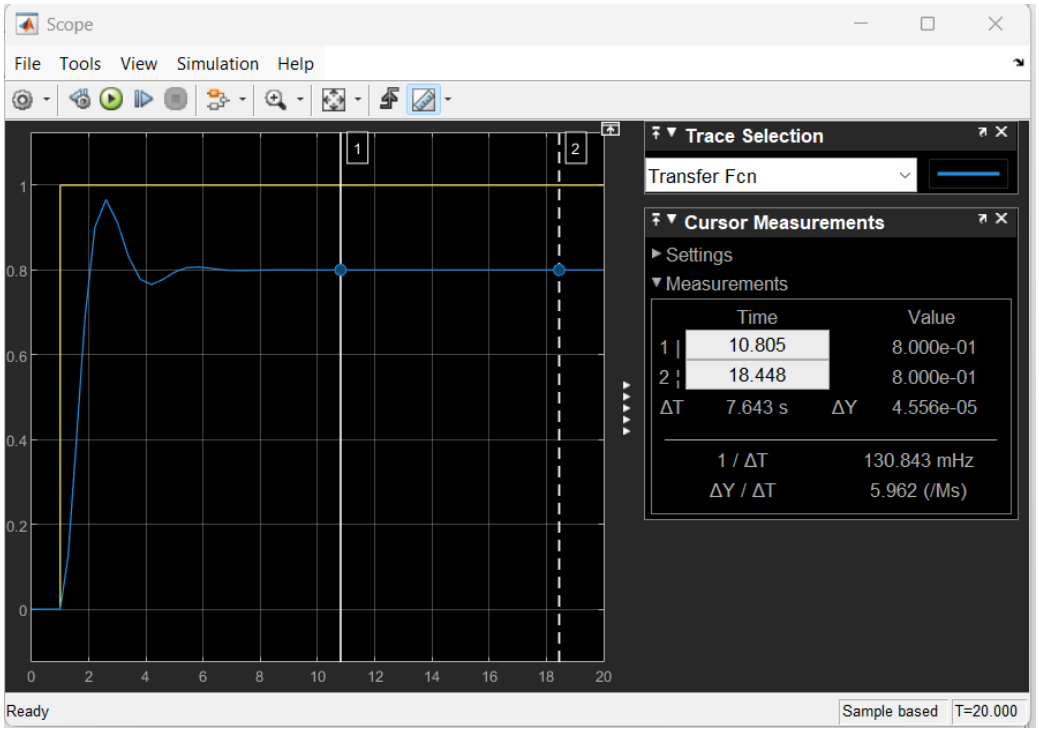
2. Deals with present errors.



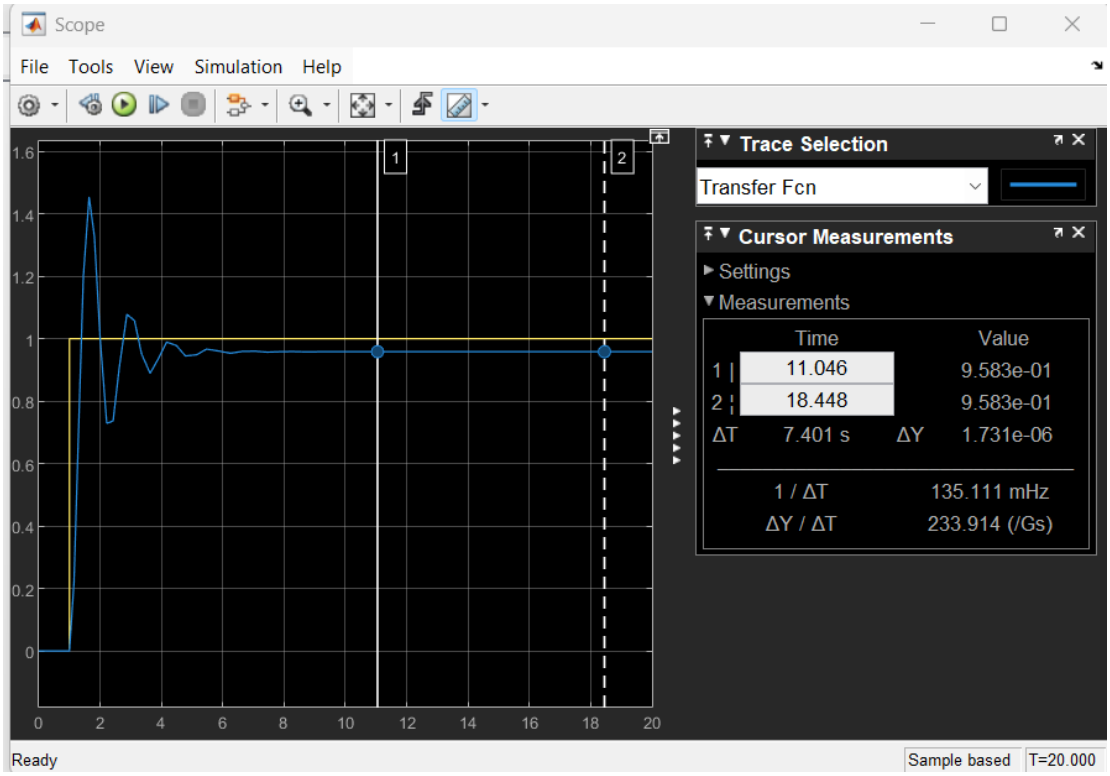


As Kp increases, the steady state error decreases.

For Kp = 4; Ts decreases but oscillations occur.

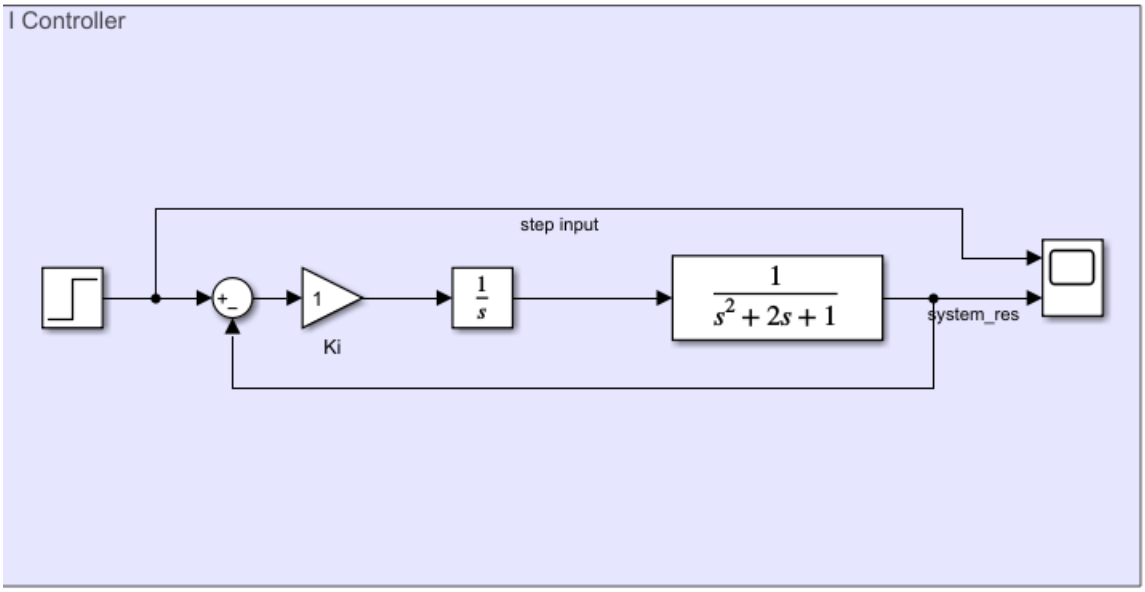


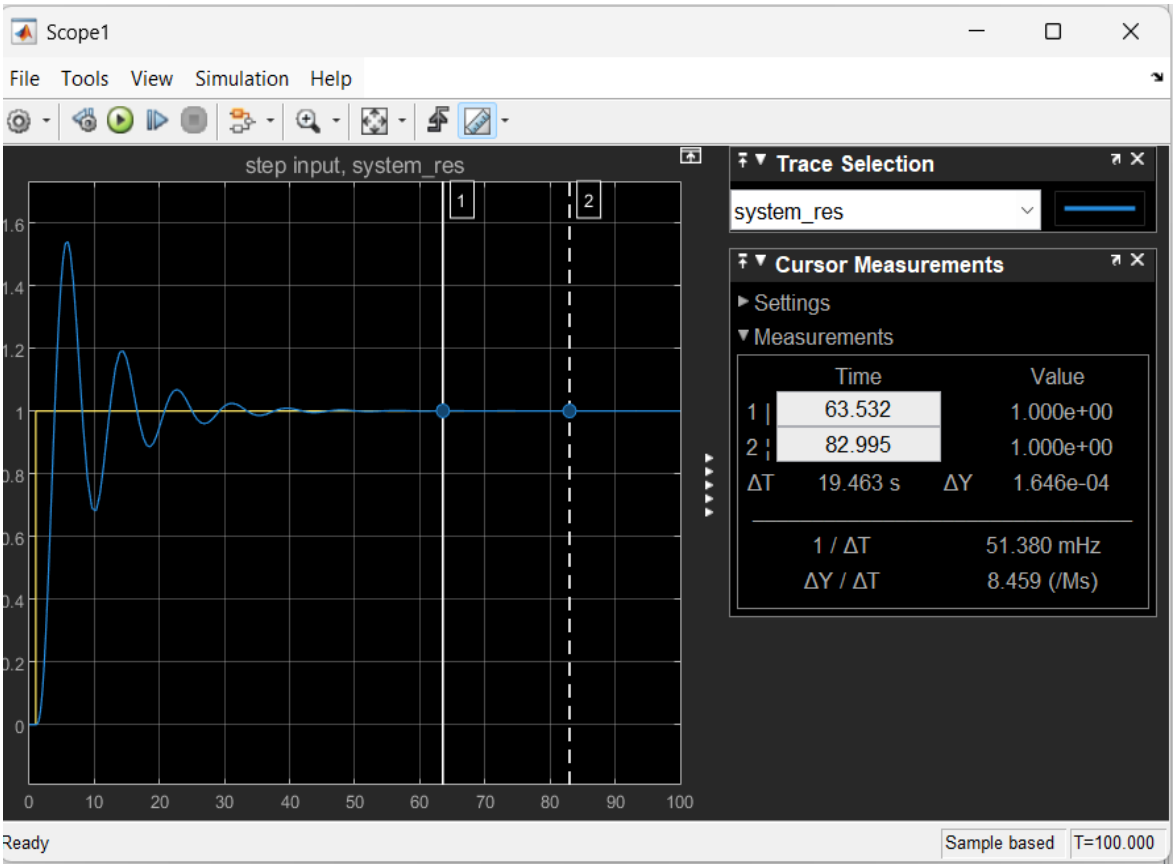
For Kp=23; more oscillation occurred.



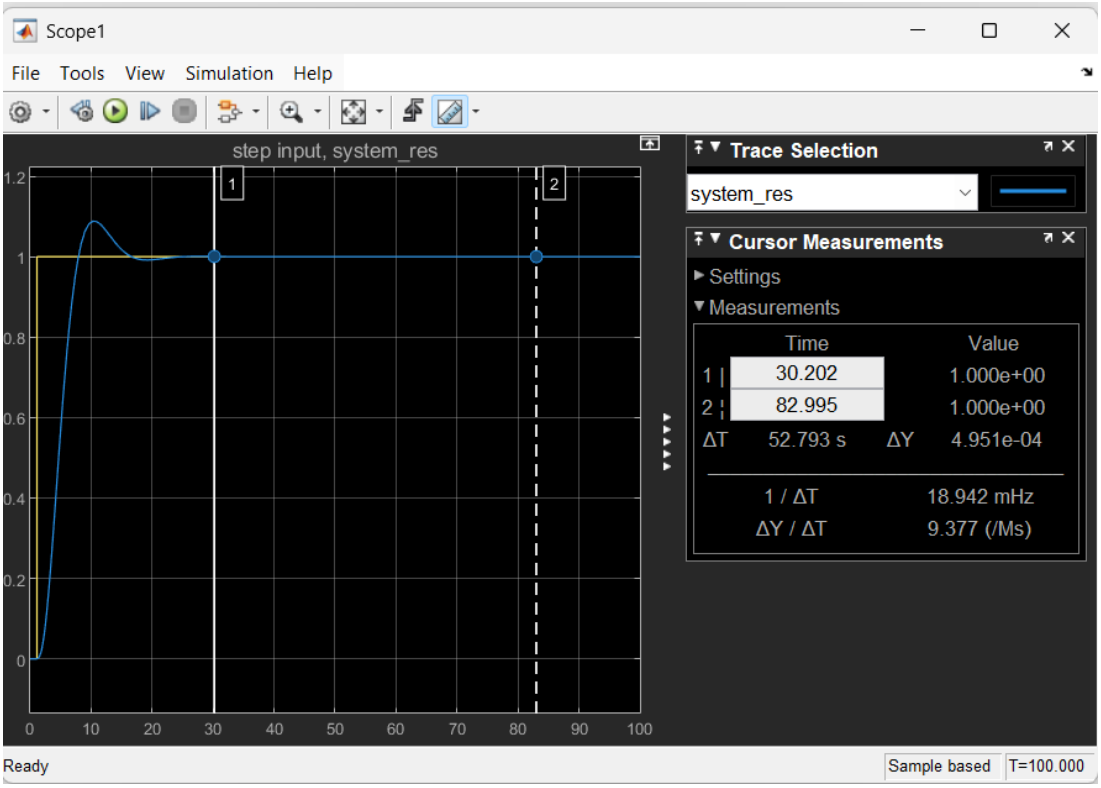
Part 2: I-Controller

1. Eliminates the steady state error.
2. Deals with past errors.
3.Large Ki causes overshoot.

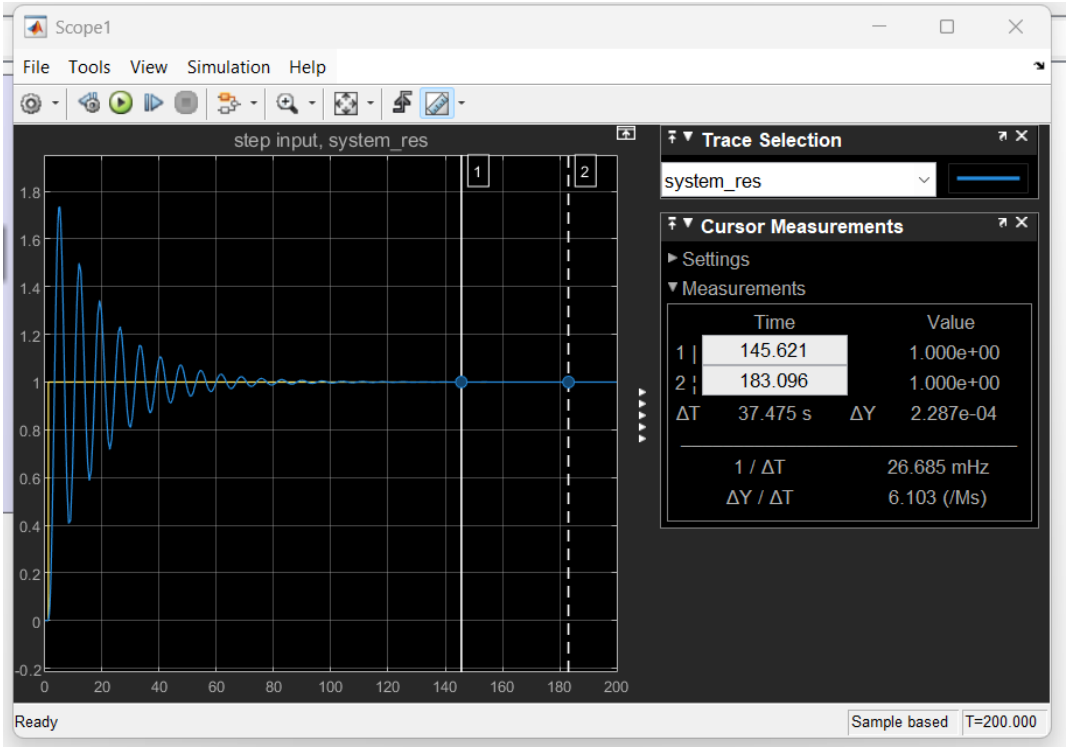




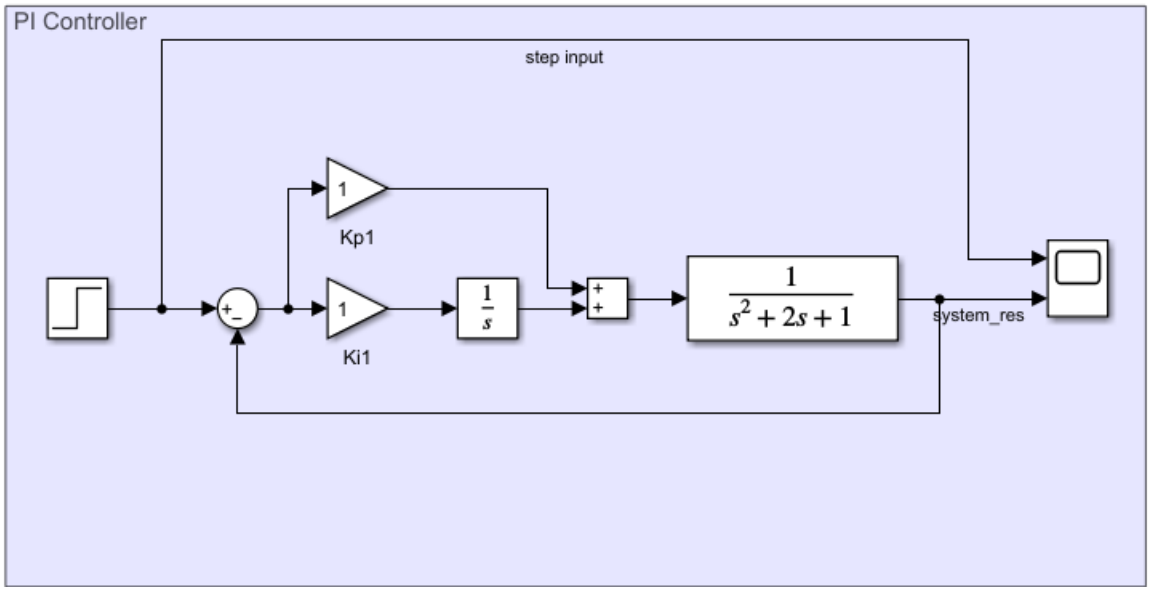
For Ki=0.3, Ts decreases and little oscllations.

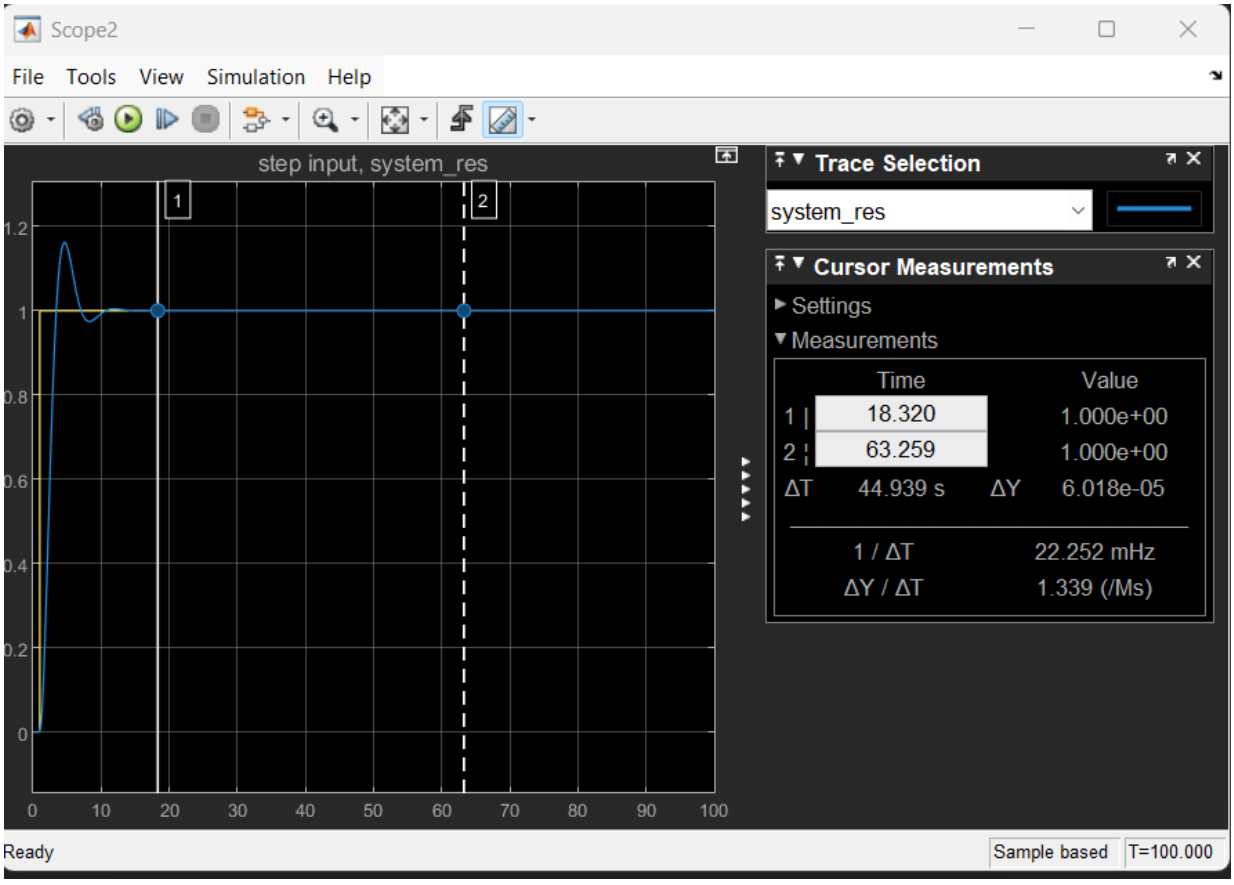


For Ki=1.5. (Not prefered)

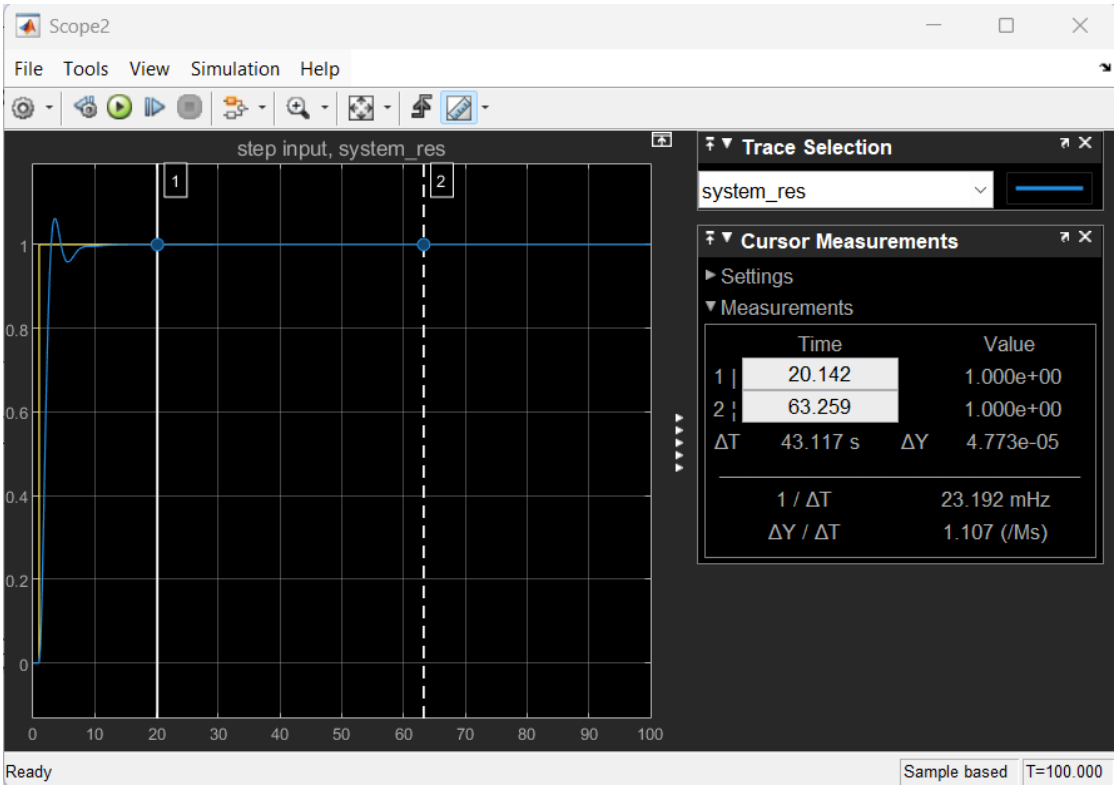


Part 3: PI-Controller

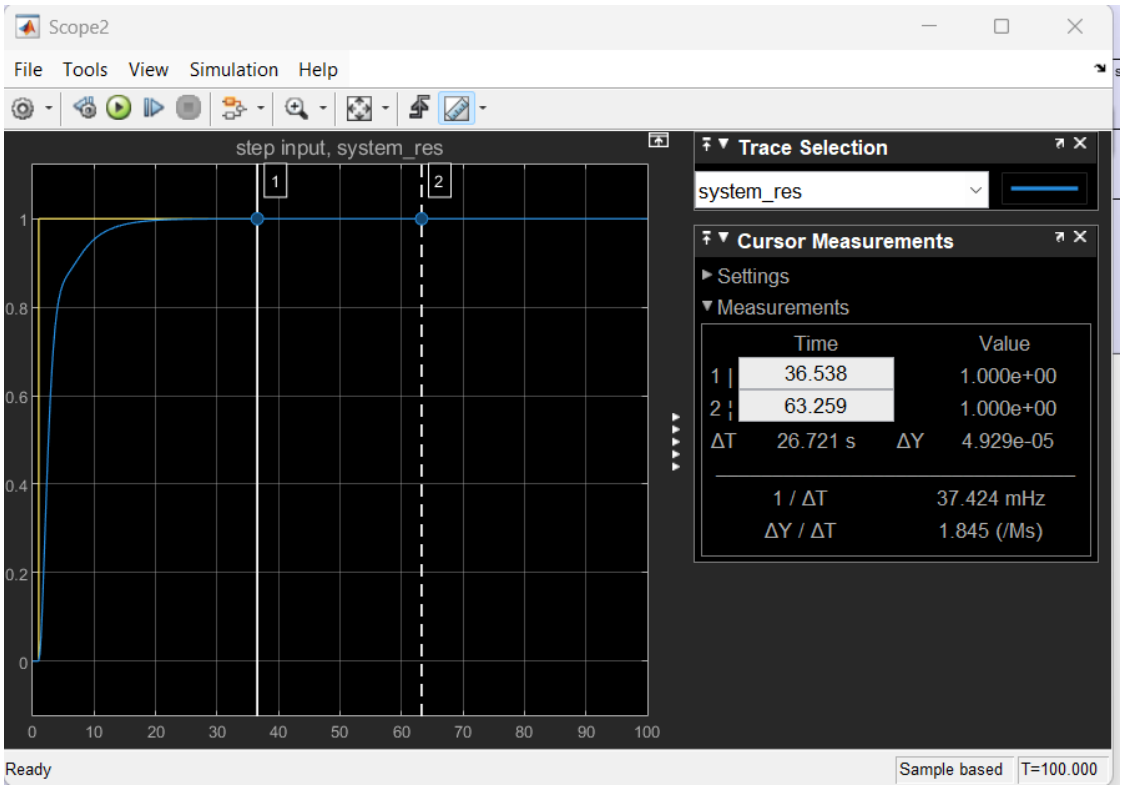




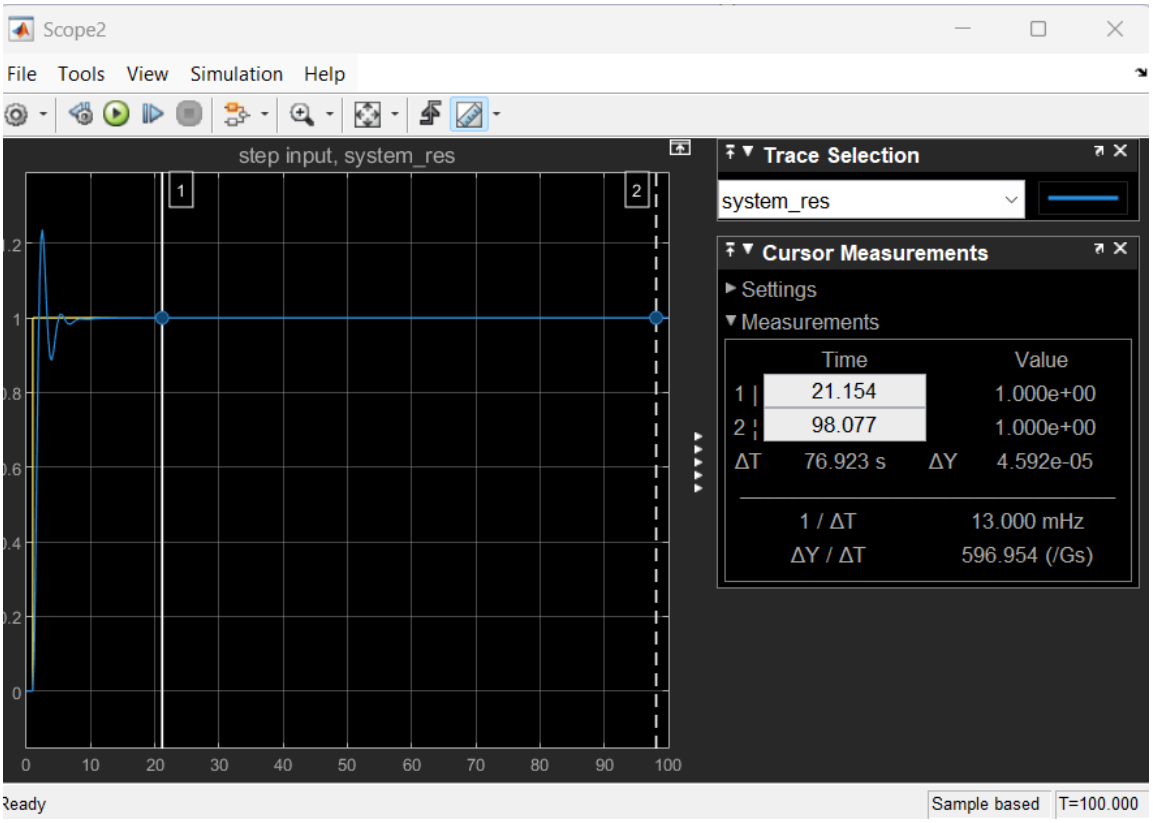
For Kp=2 & Ki=1, the steady state error equals zero.



For Kp=1 & Ki=0.4



For Kp=5 & Ki=2



For Kp=3 & Ki=0.75