Experiment No. 4

AIM

(a). Study of time response of 2nd Order System using Proportional (P) Controller.
(b). Study of time response of 2nd Order System using Proportional-Integral (PI) Controller.

REQUIREMENTS

A Laptop, MATLAB Simulink software by MathWorks INC.

OBJECTIVE

To Plot Step Response and compare Open Loop System with Closed Loop P and PI Controller for the 2nd order system (mass-spring-damper system) using Simulink.

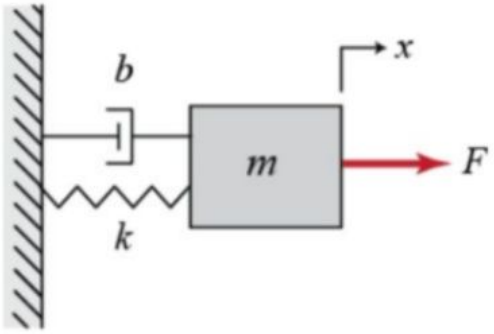

Fig.1: 2nd order system (spring-mass-damper system)

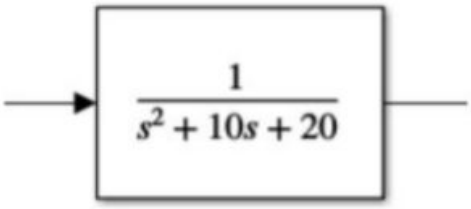

Fig.2: System Transfer Function

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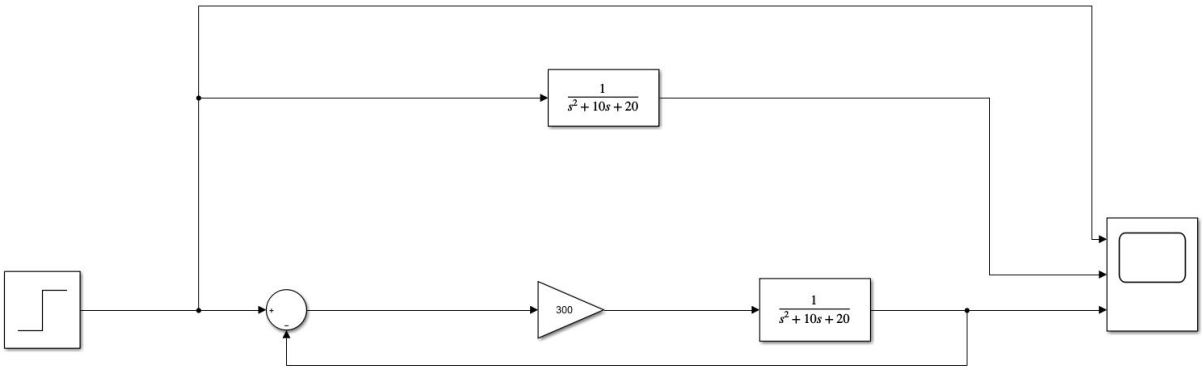
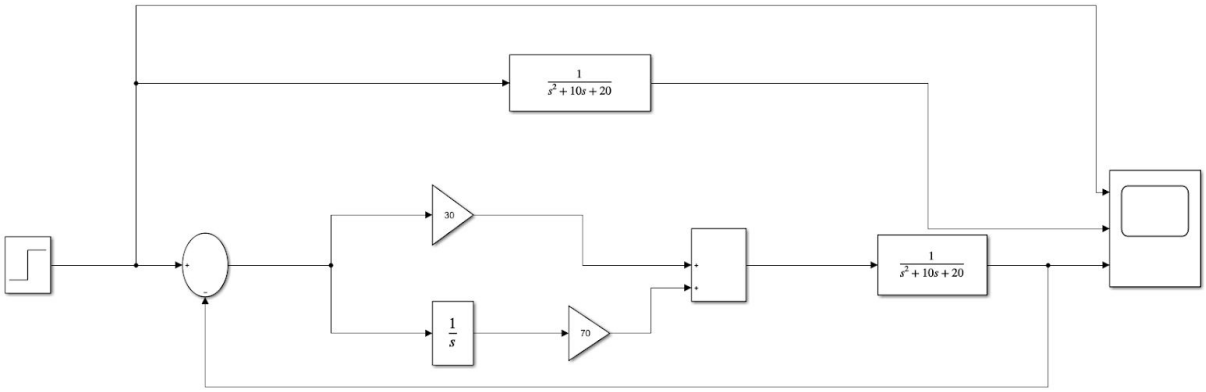
SIMULINK MODELS

1) 11Proportional (P) Controller



2) Proportional-Integral (PI) Controller



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EE2 P3

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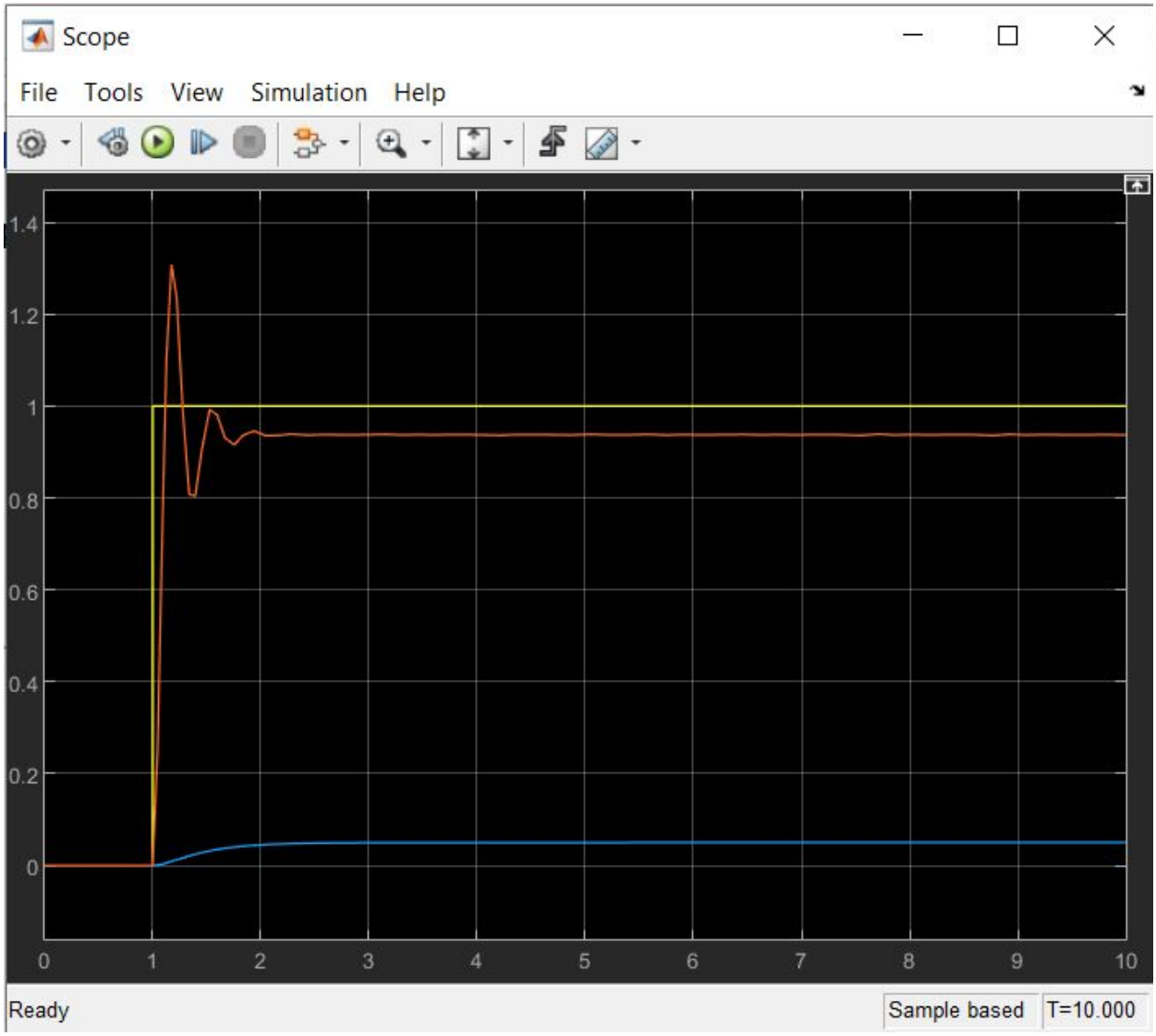
OBSERVATIONS

1) Proportional (P) Controller



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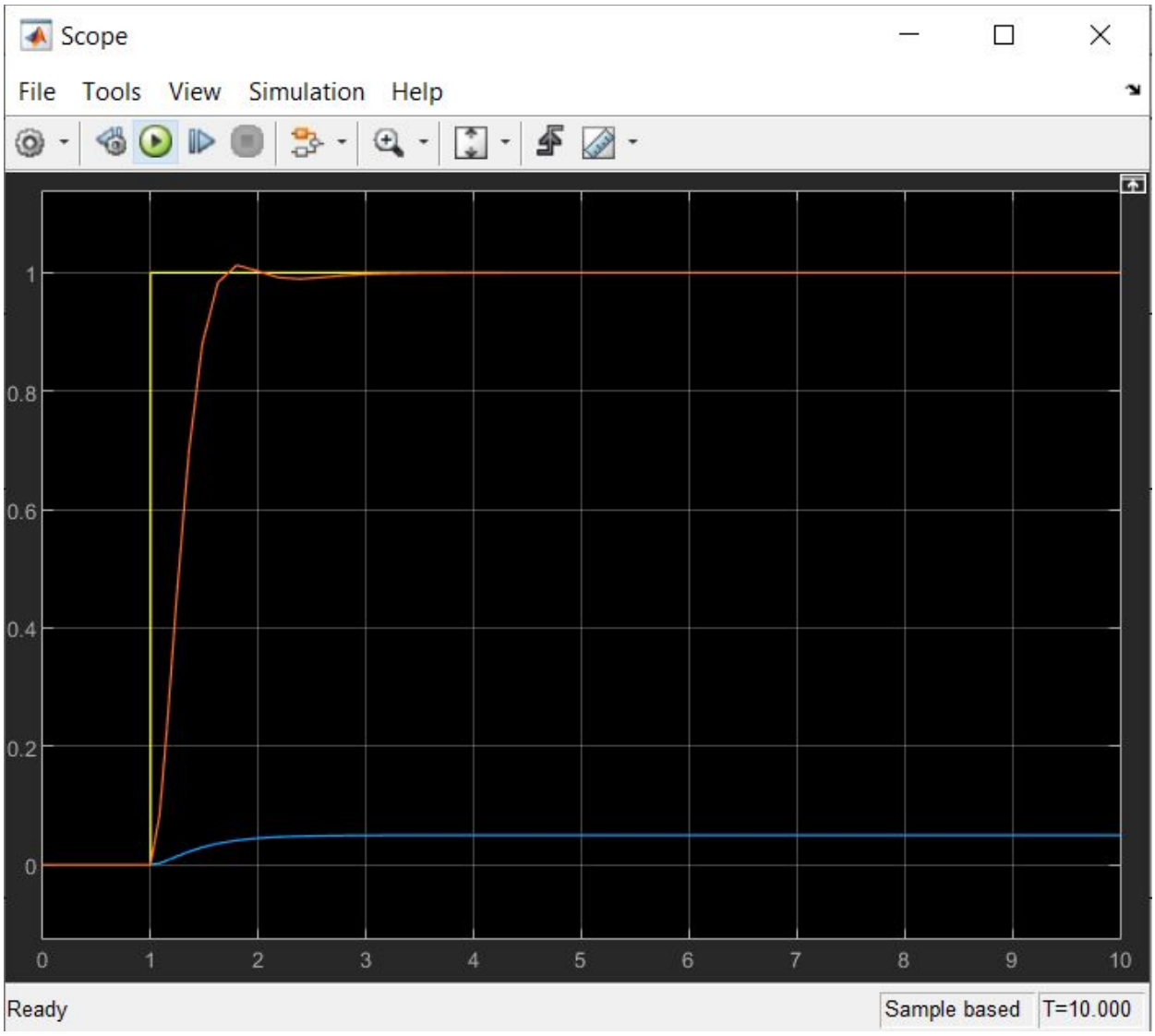
2) Proportional-Integral (PI) Controller



RESULT

The time response of P controller and PI controller were obtained by the simulink models. The difference in the plots can be easily seen in the outputs of both the controllers.

Ishan Khanna
2K19/EE/120
EE2 P3

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2K19/EE/120
EE2 P3

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2K19/EE/120
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