MECHTRONICS DEVICE ASSIGNMENT 1

DONE BY

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**Part A : Simulink setup for Step function**

A diagram of a computer program

Description automatically generated

Outputs in Step function

For Kp=1

A screen shot of a graph

Description automatically generated

For Kp=2

A screen shot of a graph

Description automatically generated

For Kp=5

A screen shot of a graph

Description automatically generated

For Kp=10

A graph of a function

Description automatically generated

For Sine Function

A diagram of a mathematical equation

Description automatically generated with medium confidence

For Kp=1

A graph of a function

Description automatically generated

For Kp=2

A graph of a function

Description automatically generated

For Kp=5

A graph of a function

Description automatically generated

For Kp=10

A graph of a function

Description automatically generated

**For Bonus part of assignment**

To prevent overshooting , I used a PID controller in the Simulink. The Setup photo is attached below

1. To prevent overshooting for Step function

The photo is attached below

A diagram of a computer program

Description automatically generated

The values of PID controller is attached in the photo below

A screenshot of a computer

Description automatically generated

The output is attached below

A screen shot of a graph

Description automatically generated

Where blue color is the input and red color graph is the desired output

1. For Sine function

The Simulink setup is attached below

A diagram of a computer program

Description automatically generated

The PID value is attached below

A screenshot of a computer

Description automatically generated

The graph is attached below

1. Zoomed out

A screen shot of a graph

Description automatically generated

1. Zoomed in

A graph of a function

Description automatically generated