**Simulation of ODE using Simulink**

**Lab report #06**

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Fall 2022

CSE-310L Control Systems

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Class Section: **B**

“On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work.”

Student Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Submitted to:

**Dr: Muniba Ashfaq**

**Nov** 10, 2022

**Department of Computer Systems Engineering**

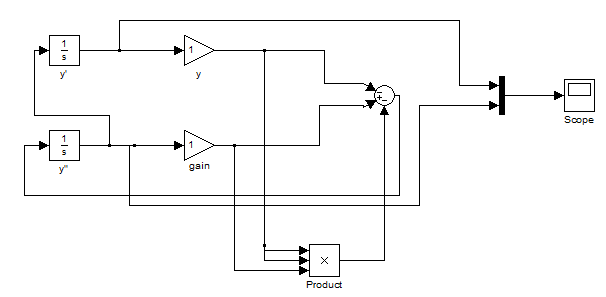
**University of Engineering and Technology, Peshawar**

**Task01:** Solve the following ordinary differential equation using Simulink.

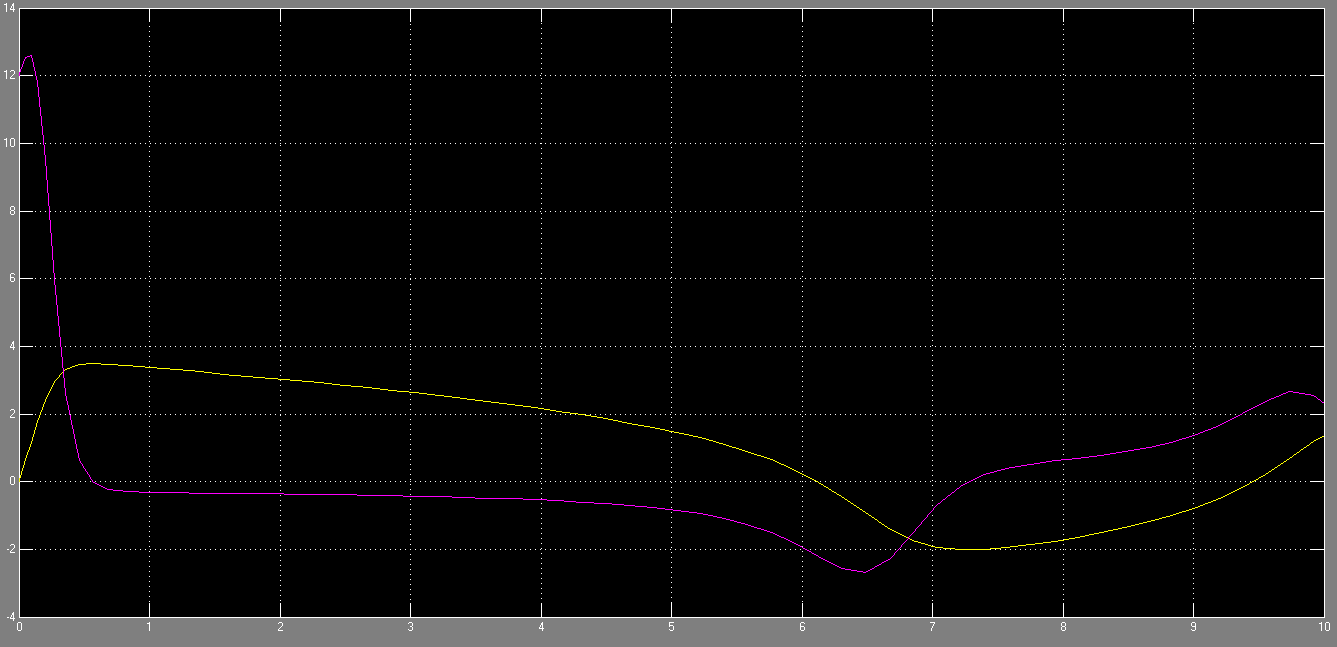
**y’’+y2y’-y’+y=0**

**y’(0)=0, y’’(0)=12**

Block diagram:



Plot:

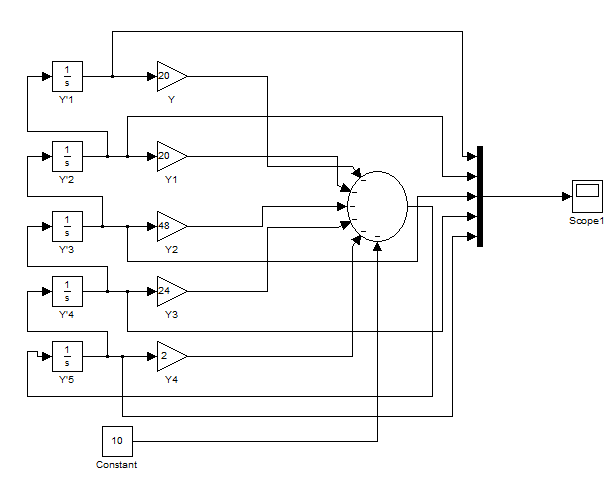


**Task02**: Solve the following ordinary differential equation.

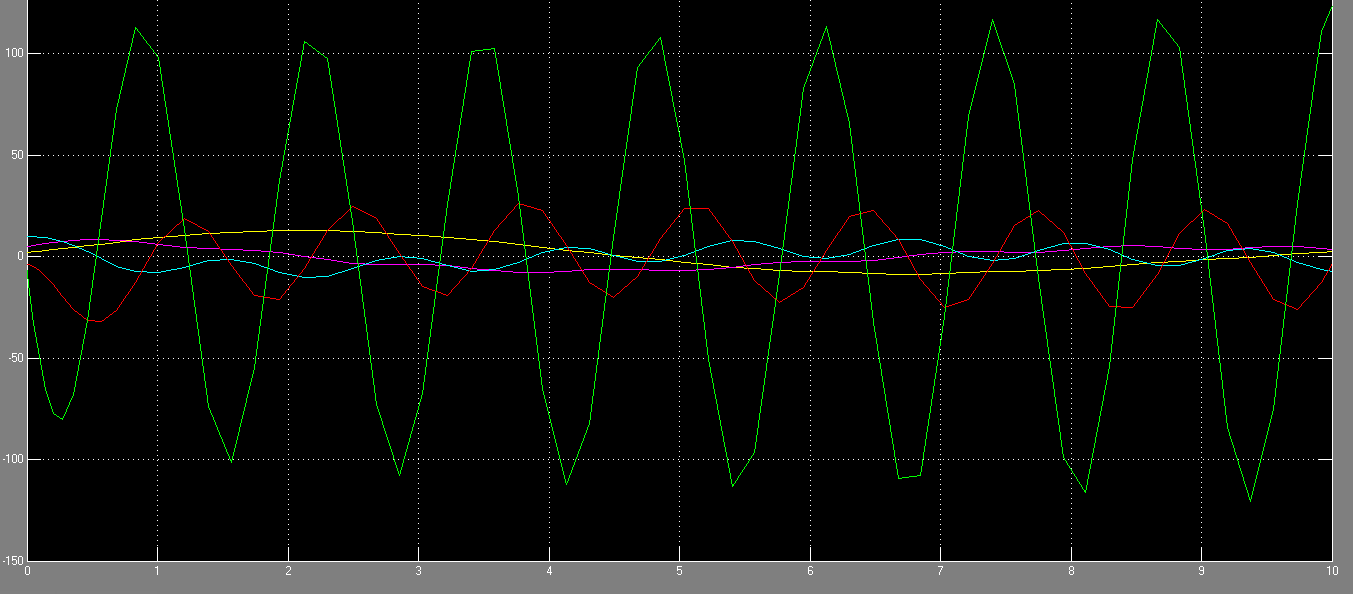
**yv+2yiv +24y’’’+48y’’+24y’ +20y+10=0**

**y(0)=2, y’(0)=5, y’’(0)=10, y’’’(0)= - 4, yiv(0)= -7**

Block diagram:



Plot:

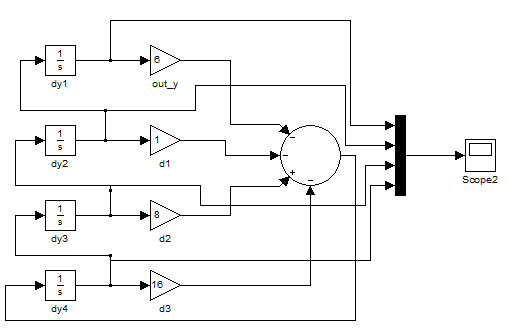


**Task03**: Solve the following ordinary differential equation using Simulink.

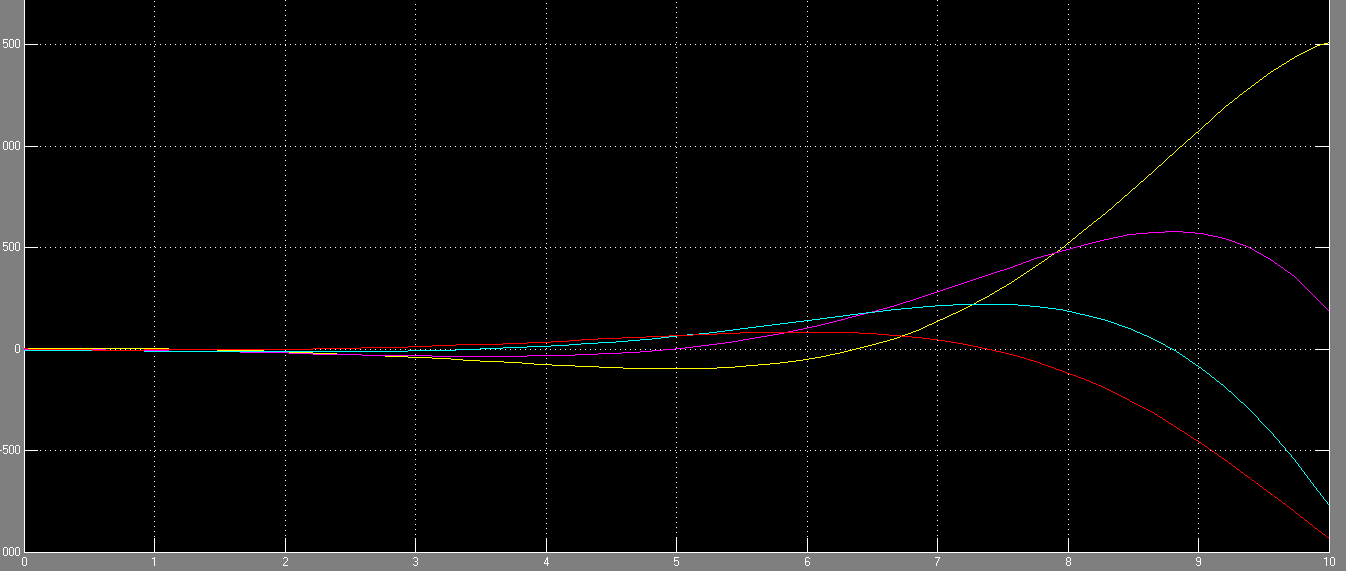
**yiv +16y’’’-8y’’+y’ +6y=0**

**y(0)=4, y’(0)=0, y’’(0)= -6, y’’’(0)= 2**

**Block diagram:**

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**Plot:**

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