Assignment 3

Graphical Representation of Systems

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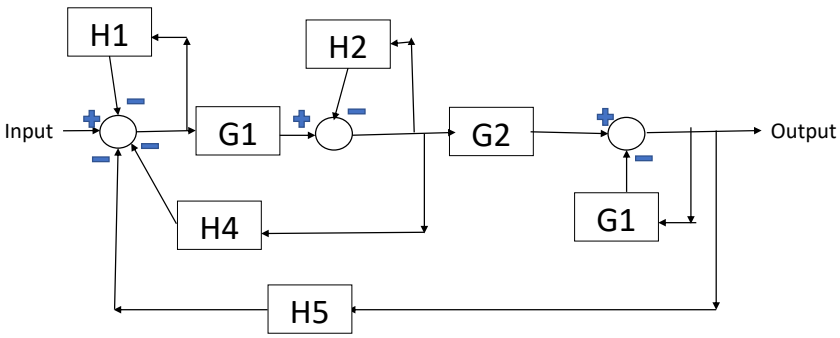
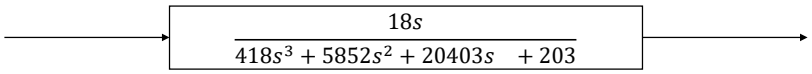
1. Convert SFG into Block Diagram

CONSTANTS:

- G1 = 3/(s+7)
- G2 = 3/(s+7)
- H1 = 9
- H2 = 8
- H3 = 10
- H4 = 1/(6s)
- H5 = 7/s



2. Transfer Function

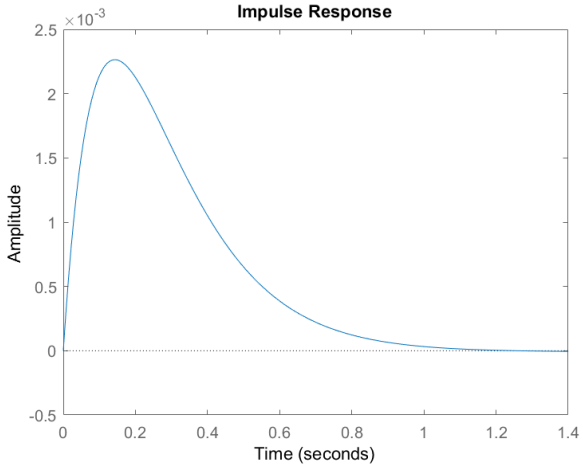


3. Mason's Gain Formula

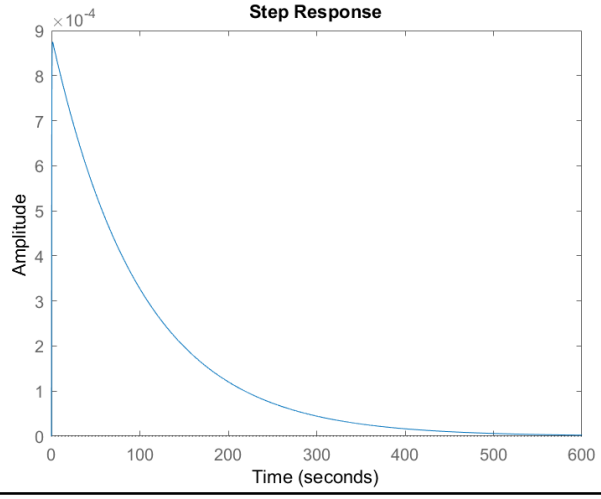
$$G = \frac{y_{\text{out}}}{y_{\text{in}}} = \frac{\sum_{k=1}^{N} G_k \Delta_k}{\Delta}$$

$$\text{TF} = \frac{18s}{418s^3 + 5852s^2 + 20403s \quad + 203}$$

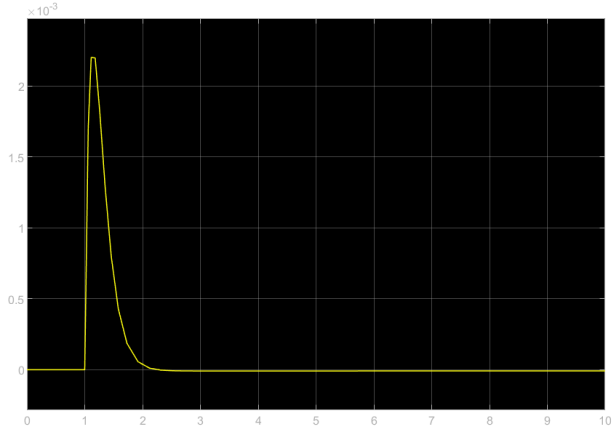
4. MatLab Impulse Response



4. MatLab Step Response



5. Simulink Impulse Response



5. Simulink Step Response