Experiment No. 7

Title: Time response analysis of first and second order systems.

Objectives:

1. To study the standard test signals.
2. To find the time response of first and second order systems for standard test signals.
3. To perform analysis of time response of first and second order systems.

SIMULINK:

1. Design the block diagram in SIMULINK to visualize the time response of first order system described by its transfer function $G(s) = \frac{1}{Ts+1}$ for standard test signals,
   i) Impulse ii) Step iii) Ramp with T=0.2, 0.5.

2. Design the block diagram in SIMULINK to visualize the time response of second order system described by the transfer function $G(s) = \frac{{\omega_n}^2}{s^2+2\xi\omega_n s+{\omega_n}^2}$ for standard test signals, i) Impulse ii) Step iii) Ramp, with $\omega_n = 4$ and $\xi = 0, 0.5, 1\ and\ 2$.

Conclusion: (Hint: write a brief note of tasks performed in this experiment and comparison of time response.)