Work in group to solve the following problems:

**Part 1:**

1.1: **(3 points)**
Consider a closed-loop control system whose open-loop transfer function given by:

\[ G(s) = \frac{K}{(s+1)(s+5)} \quad (K = 30) \]

1. Calculate the steady-state error when the input is a unit step function.
2. Calculate the percentage of overshoot and the settling time (according to 5% criterion).

1.2 **(3 points)**
Read the slides in the lecture note about the transient response of high-order system.

Repeat the problem 1 with \[ G(s) = \frac{K}{(s+1)(s+3)(s+5)} \quad (K = 30) \]

**Part 2:**

2.1 **(4 points)** Using Matlab/Simulink to verify the results obtained in the problem 1 and 2. Copy and paste the Simulink models and the scopes of the output into your report. Specify the steady state error, the overshoot and the settling time in the scopes.

Remember to work in group and make sure that all your group members understand the solutions. I will evaluate your teamwork by asking random students to present your solutions in front of the class.