Exercise 1(A) - Additional Task 3

For this exercise, the developed mathematical models were reasonably accurate representations of the systems (mechanical, electrical and electromechanical systems). All the significant system parameters were considered while modelling the respective systems. The neglected parameters include stray values and disturbances which need not be considered for this simulation exercise.

In general, model accuracy is required when system dynamics are really important to achieve accurate control. However, increasing the model accuracy also increases the order of the system (due to non-linear behaviour) which thereby increases the time complexity of simulation and limits real-time computation and control actions. Therefore, most of the systems are modelled with some level of approximation to ease the modelling task as well as to reduce time complexity of real-time computation.