Taylor's University

School of Engineering

Module Name and Code	: ENG60803 Real Time Instrumentation
Semester and Year	: Semester 5/6, Year 3
Tutorial Number/ Week	: Tutorial 3, Week 3
Learning Outcome	: LO5
Module Co-ordinator/Tutor	: Dr. Phang Swee King

Q1 Find the transfer function of the following systems:

a) $\ddot{y}(t) - 2\dot{y}(t) + 4y(t) = r(t)$

b) $\ddot{y}(t) + y(t) = 2\dot{r}(t) + r(t)$

c) $\ddot{y}(t) + 12\dot{y}(t) + 32y(t) = 4\ddot{r}(t) + 2\dot{r}(t) + r(t)$

d) $\ddot{y}(t) - 3\dot{y}(t) + 2y(t) = 3\ddot{r}(t)$

Q2 Find the differential equations of the following transfer function $Y(s)/R(s)$:

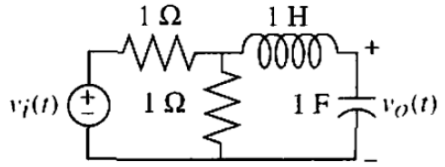
a) $\frac{10}{s(s+1)(s+10)}$

b) $\frac{1}{(s+3)(s+7)}$

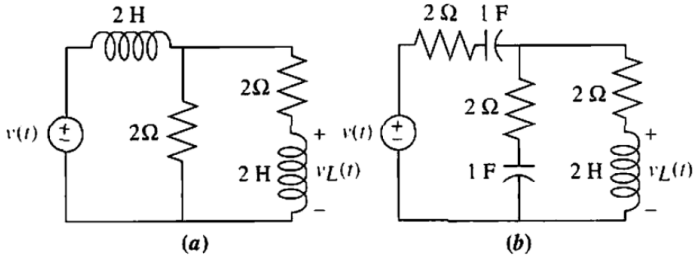
c) $\frac{s+7}{s^2+6s+5}$

d) $\frac{s-1}{s^2+3s+2}$

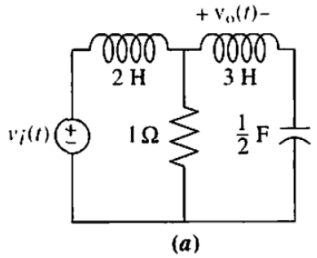
Q3 Find the transfer function, $G(s) = V_o(s)/V_i(s)$, for the network shown below:



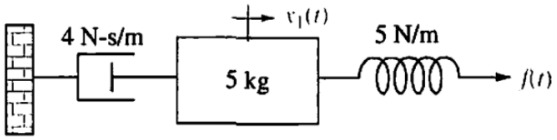
Q4 Find the transfer function, $G(s) = V_L(s)/V(s)$ for each network shown below:



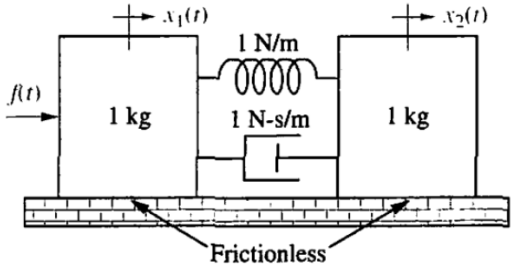
Q5 Find the transfer function, $G(s) = V_o(s)/V_i(s)$, for the network shown below:



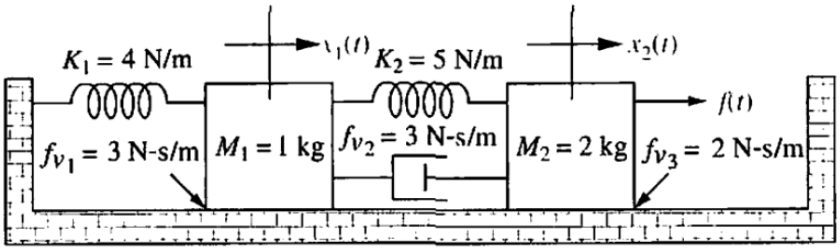
Q6 Find the transfer function, $G(s) = X_1(s)/F(s)$, for the translational mechanical system shown below:



Q7 Find the transfer function, $G(s) = X_2(s)/F(s)$, for the translational mechanical system shown below:



Q8 Find the transfer function, $G(s) = X_1(s)/F(s)$, for the translational mechanical system shown below:



END OF TUTORIAL