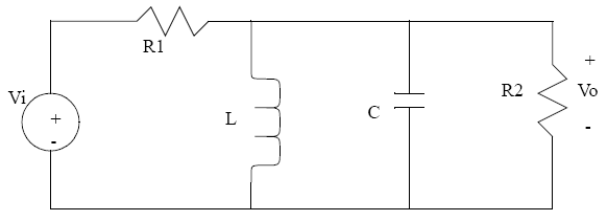
Kafrelsheikh University
Faculty of Engineering
Electrical Dept.

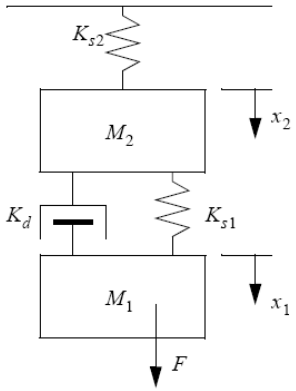
Subject: Automatic Control	
Time allowed: 90 Mins	
Name:	Sec:

Question 1

A. Find the transfer function $V_o(s)/V_i(s)$ for the circuit below, and then find the natural frequency and damping coefficient

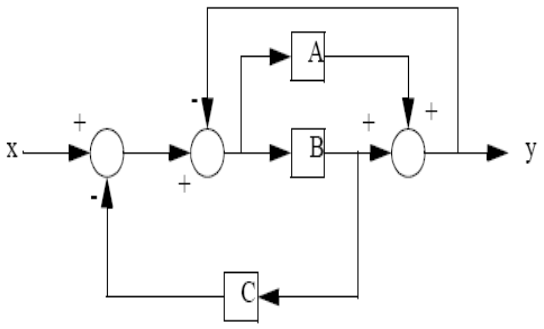


B. Find the transfer function $X_2(s)/F(s)$

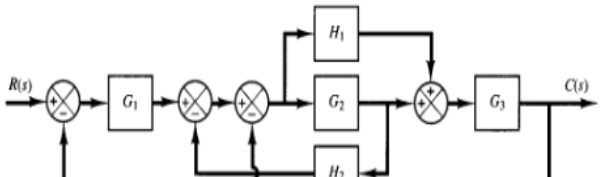


Question 2

A. Reduce the block diagram shown below to find the transfer function $Y(s)/X(s)$



B. Using signal flow graph, find the transfer function of the system shown

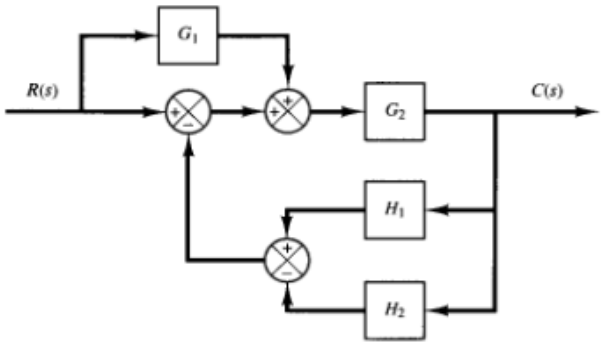


Question 3

A. Find the inverse Laplace transform for the following functions

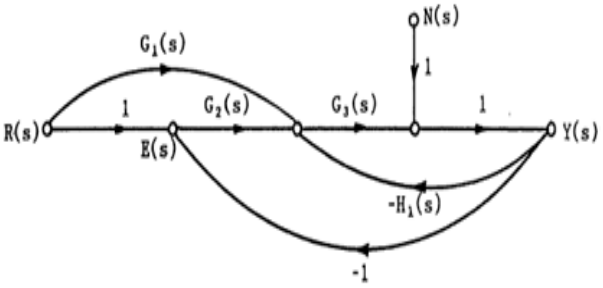
$$F(s)=\frac{5s+2}{(s+1)(s+2)^2}$$

B. Reduce the block diagram show below



Question 4

Find the Transfer function $\left.\frac{Y(s)}{R(s)}\right|_{N(s)=0}$



Best Wishes

Dr. Mostafa A. El-Hosseini