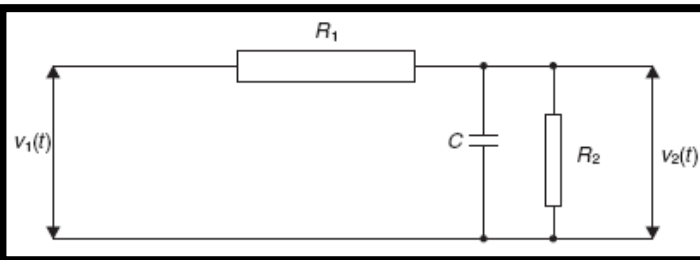
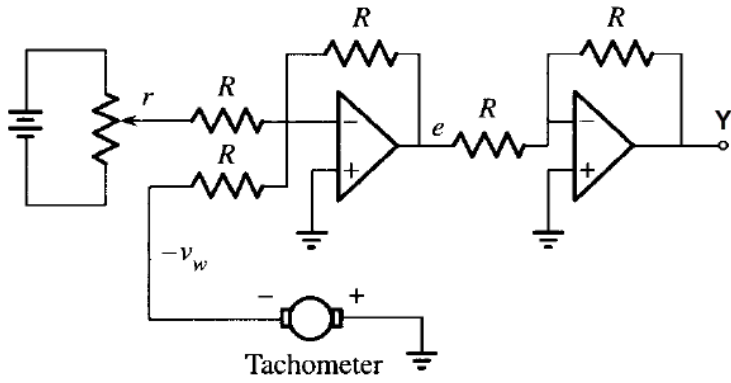


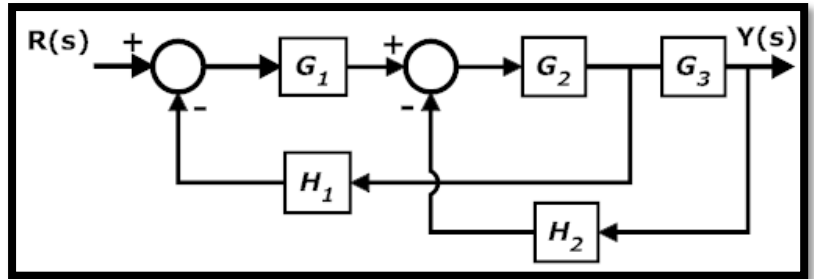
Mansoura University		Computer Engineering and Control Syst. Dept. Total Marks: 40 Marks	Faculty of Engineering
Course Title: Control Engineering 1		Course Code: CSE 3116	
Date: 14 Nov. 2016		Allowed time: 1 hr.	No. of Pages: (02)
Remarks: (Answer the following questions... assume any missing data)			

Question No. 1	10 Marks
A. Determine the transfer function relating $V_2(s)$ and $V_1(s)$ B. When $C = 2 \mu F$ and $R_1 = R_2 = 1 M\Omega$. Determine the steady state gain K and time constant τ C. Find an expression for the unit step response 	

Question No. 2	10 Marks
Obtain the equation that relates the output voltage $Y(s)$ to $r(s)$ and $v_w(s)$ 	

Question No. 3**10 Marks**

Use Block diagram reduction to find transfer

function $\frac{Y(s)}{R(s)}$ **Question No. 4****10 Marks**

Obtain the unit-step response of the following system:

$$\frac{C(s)}{R(s)} = \frac{10}{s^2 + 4s + 4}$$