

RP/ IPRC TUMBA

ACADEMIC YEAR: 2019-2020

Dept: RE / LEVEL 3/ SEMESTER 2

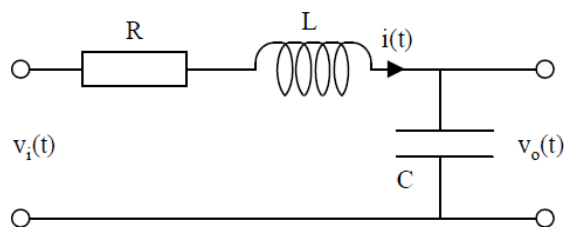
MODULE TITLE: AUTOMATION AND CONTROL SYSTEM

MODULE CODE: REN302

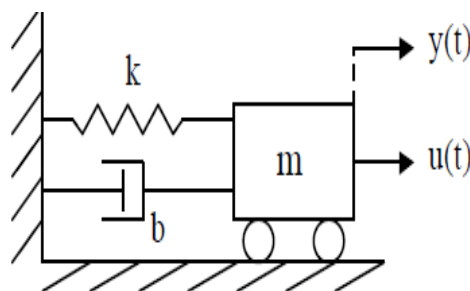
Friday 12th Nov, 2020

Assignment 7

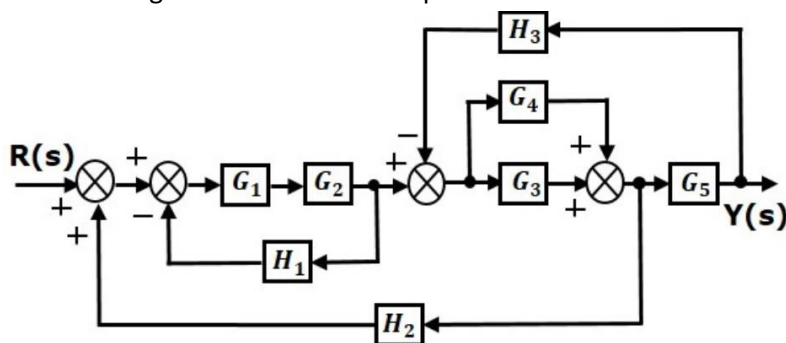
1. Consider the LCR electrical network shown in the figure below. Find the transfer function $G(s) = V_o(s)/V_i(s)$.



2. In the mechanical system shown in the figure below, m is the mass, k is the spring constant, b is the friction constant, $u(t)$ is an external applied force and $y(t)$ is the resulting displacement. Find the differential equation and the transfer function between the input $U(s)$ and output $Y(s)$.



3. Consider the block diagram shown in the following figure. Reduce this block diagram using the block diagram reduction techniques.



NB. To be submitted not later than: **Nov 29, 2020** before 11:59 PM

- Submission: **Hard copy to be submitted**
- Group Size: **4 students**
- If you need further clarifications please reach me to my email or Whatsap through: **jnyitegeka@iprctumba.rp.ac.rw /+250788973044**

Stay safe and protected by washing your hands every time, avoiding shaking your friends or any physical contact!!!!