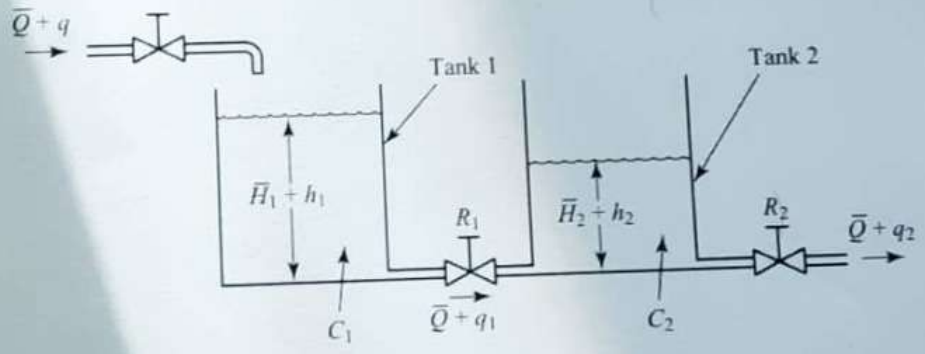
Kathmandu University, Dhulikhel
Department of Electrical and Electronics Engineering
Instrumentation and Control (COEG-304)
First Internal Exam, Date: August 29, 2022

Timing: 11:00 AM to 12:00 PM Mechanical (III Year-I Sem) Full mark: 20

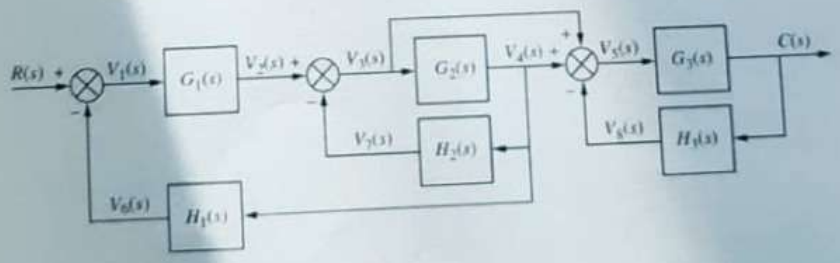
Attempt any Four questions

1. Write the difference between open loop and closed loop control system with proper examples. **(5)**

2. Consider a liquid level system as shown in the figure below. In this system, two tanks interact, find the transfer function $Q_2(s)/Q(s)$. **(5)**



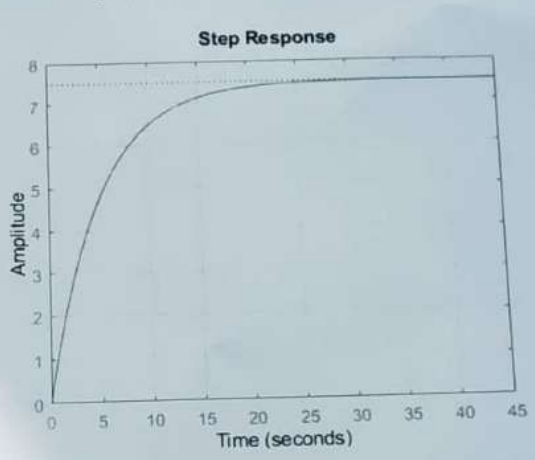
3. Reduce the block diagram of a figure shown into a single transfer function model. **(5)**



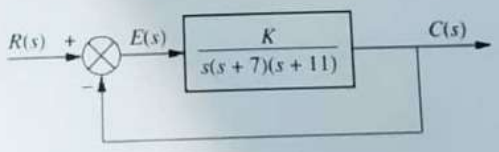
4. (a) For the transfer function given below perform the Inverse Laplace Transform (ILT). Describe the effect of addition of zero at $s = -2$ in the given transfer function. **(2.5)**

$$G(s) = \frac{2}{(s+1)(s+4)}$$

(b) Determine the approximate transfer function (TF) of the system that produces the output as shown in figure below in response to unit step input. **(2.5)**



5. Find the value/range of gain, K, for the system of figure given below that will cause the system to be stable. Assume $K > 0$. **(5)**



The End !