

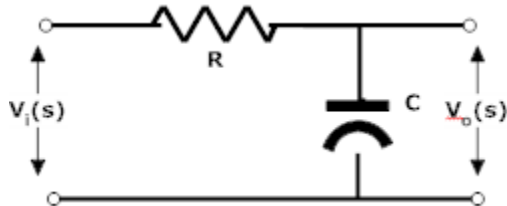
# Automatic Control Systems

## Sheet (02)

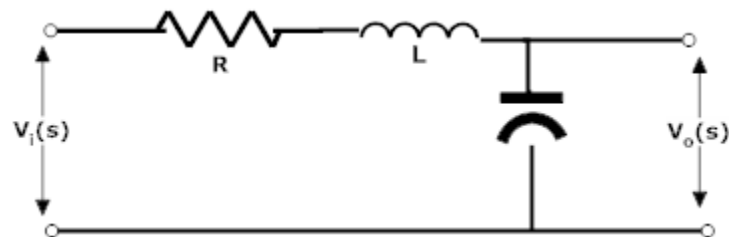
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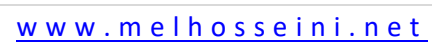
1. Consider the RC circuit shown in fig. below, find the transfer function



2. Write down the transfer function  $V_o(s)/V_i(s)$  for the fig. below



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- Given that:

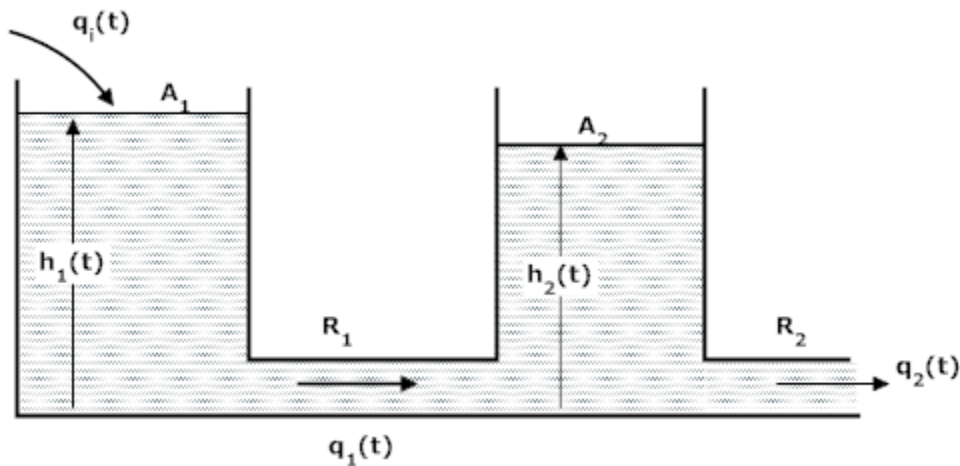
△ The rate of flow  $q_1$  is related to the head difference through the flow resistance  $R_1$  by

$$q_1 = \frac{h_1 - h_2}{R_1}$$

given by  $q_1(t) - q_2(t) = A_2 \frac{dh_2}{dt}$

△ The flow resistance  $\rightarrow q_2 = \frac{h_2}{R_2}$

- b) Draw the block diagram**

[illegible]