

Instruction: Hand in your work with name and code to my desk by 10.00 am. of the due date. DO NOT copy homework from your classmates or lend it to others. Anyone who violates this regulation will be given -10 for the homework.

1. An LTIC system is specified by the block diagram in Fig. 1 For each input $f(t)$ and

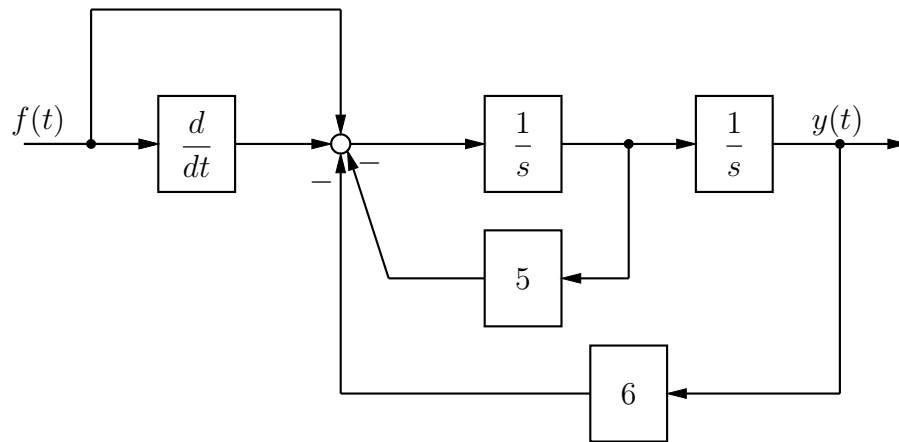


Figure 1: a block diagram of the LTIC system.

the initial values listed below, find zero-input , and impulse responses of the system.

- a. $f(t) = 6t^2$, $y(0) = 2$ and $\dot{y}(0) = -1$. (5 points)
 - b. $f(t) = 4e^{-4t}$, $y(0) = 2$ and $\dot{y}(0) = -1$. (5 points)
2. Determine the unit impulse response of LTI systems described by

$$(D + 2)y(t) = (3D + 5)f(t)$$

(5 points)