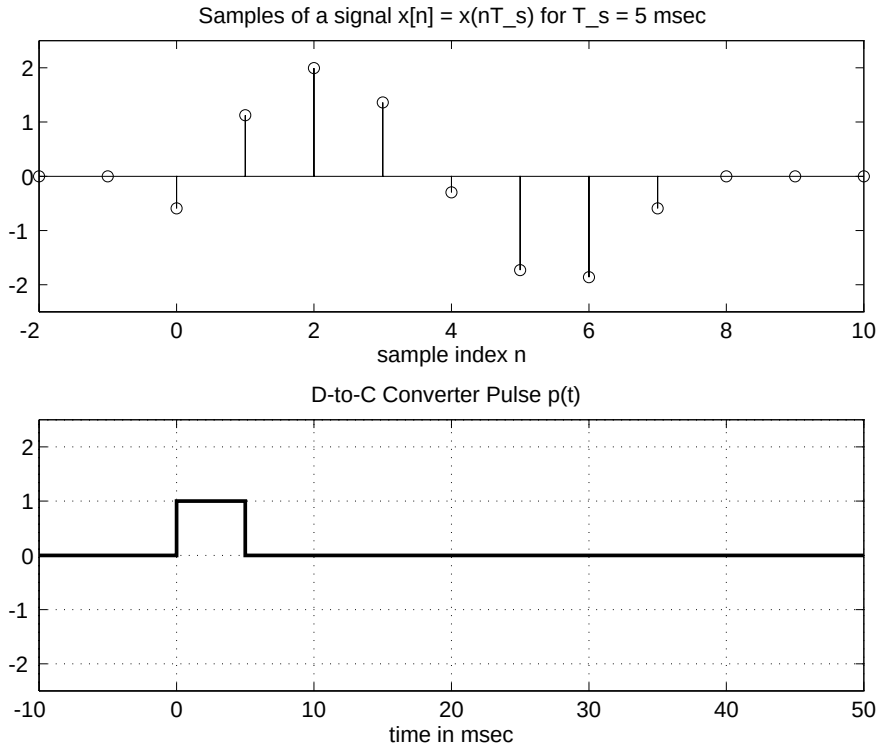
PROBLEM:

The top part of the figure below shows samples $x[n] = x(nT_s)$ taken with sampling period $T_s = 5$ msec. The samples are plotted at the sample index points n. A signal $y(t)$ is reconstructed from the samples using a D-to-C converter defined by the equation

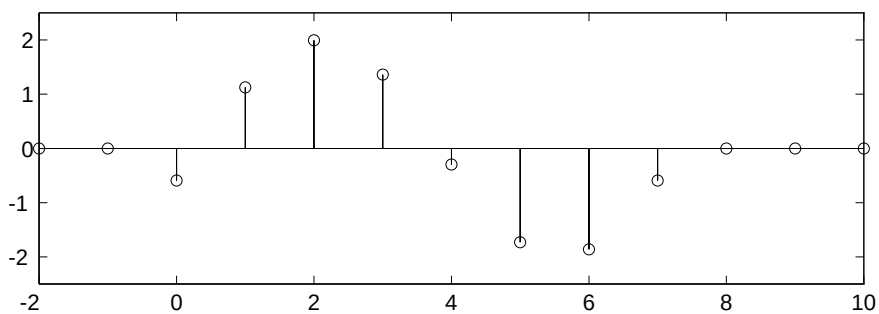
$$y(t) = \sum_{n=-\infty}^{\infty} x[n]p(t - nT_s)$$

where the D-to-C conversion pulse $p(t)$ is as shown in the bottom part of the figure.



(a) Plot the D-to-C converter output $y(t)$ on the graph in the figure below.

(b) Label the horizontal axis scale of the figure below in terms of the continuous-time variable t.



McClellan, Schafer and Yoder, *Signal Processing First*, ISBN 0-13-065562-7.
Prentice Hall, Upper Saddle River, NJ 07458.

SOLUTION

The top part of the figure below shows samples $x[n] = x(nT_s)$ taken with sampling period $T_s = 5$ msec. The samples are plotted at the sample index points n. A signal $y(t)$ is reconstructed from the samples using a D-to-C converter defined by the equation

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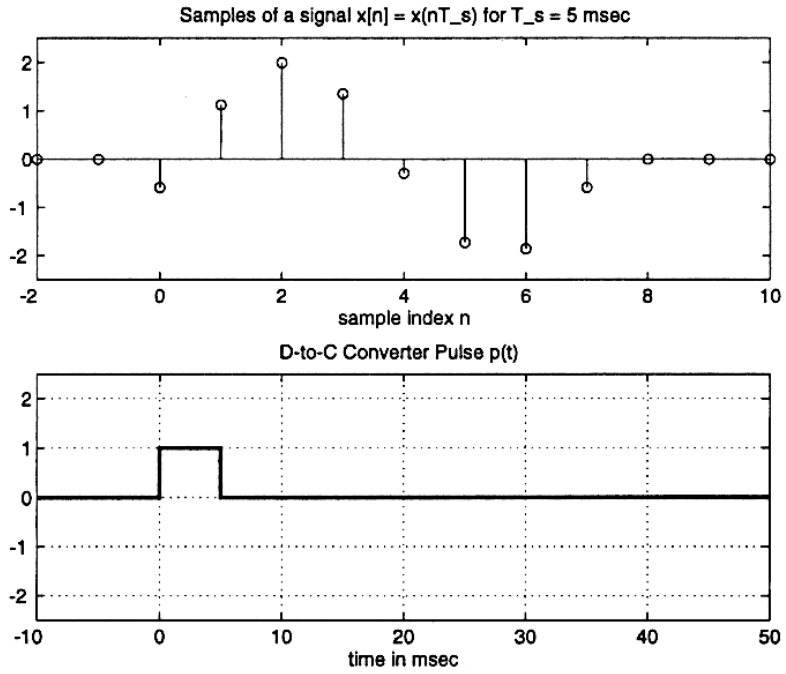

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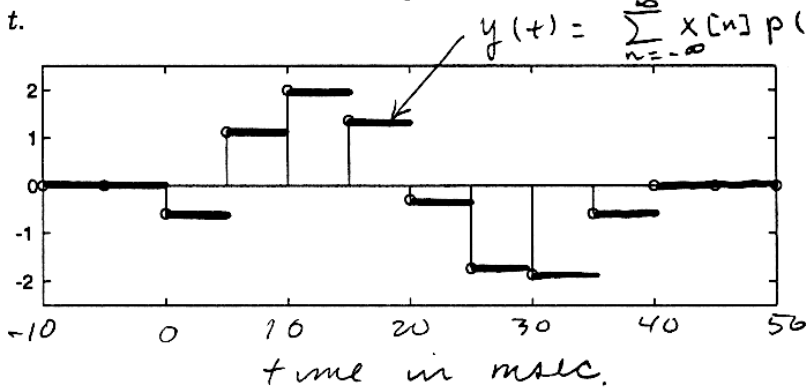

$T_s = 5$ msec.
Note shift of $\frac{1}{2}T_s$ as compared to what we did in class.