

EE3900 Quiz-1

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Download all python codes from

<https://github.com/vrahul02/EE3900/tree/main/Quiz-1/Codes>

and latex-tikz codes from

<https://github.com/vrahul02/EE3900/tree/main/Quiz-1/Quiz-1.tex>

PROBLEM 2.34(A)

The input-output pair $x_0[n]$, $y_0[n]$ is given for a stable LTI system.

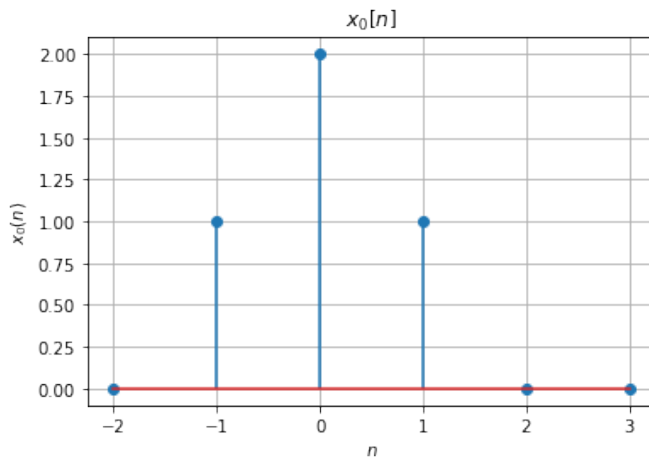


Fig. 0: Plot of $x_0[n]$

Determine the response to the input $x_1[n]$.

SOLUTION

Notice that

$$x[n] = x_0[n-2] + 2x_0[n-4] + x_0[n-6] \quad (0.0.1)$$

Since the system is LTI,

$$x[n] = x_0[n-2] + 2x_0[n-4] + x_0[n-6] \quad (0.0.2)$$

and we get sequence shown here:

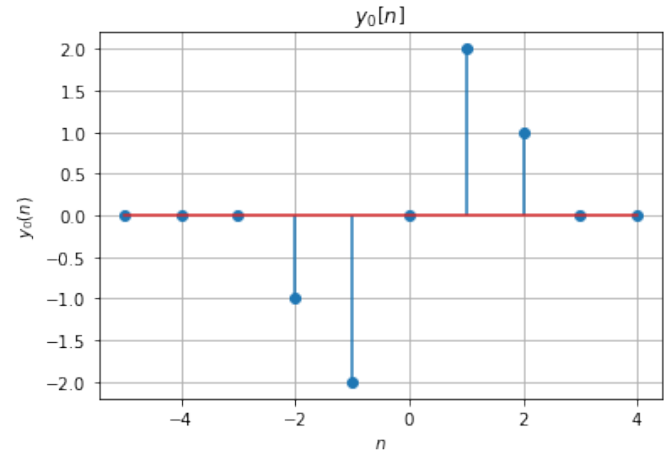


Fig. 0: Plot of $y_0[n]$

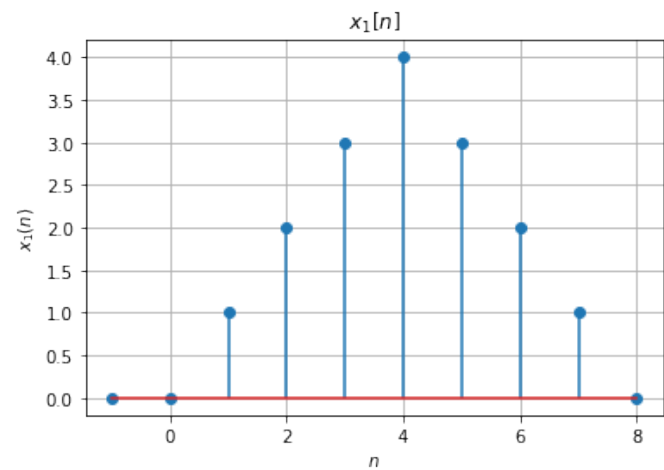


Fig. 0: Plot of $x_1[n]$

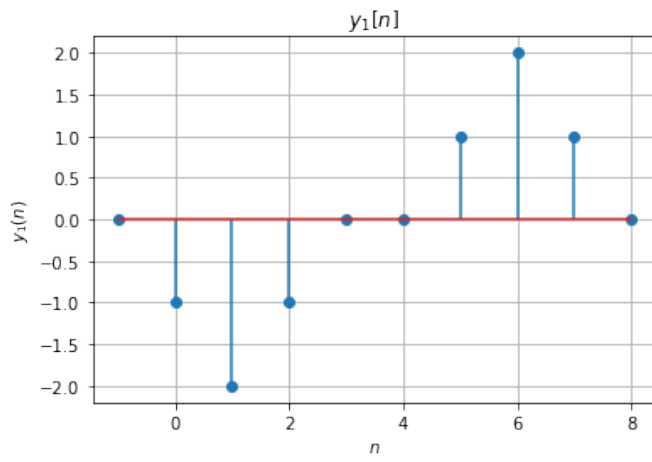


Fig. 0: Plot of $y_1[n]$