EE3900 Quiz-1

V Rahul - AI20BTECH11030

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.

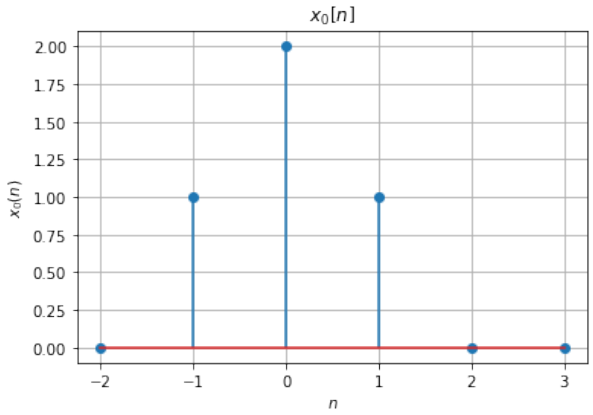

Fig. 0: Plot of $x_0[n]$

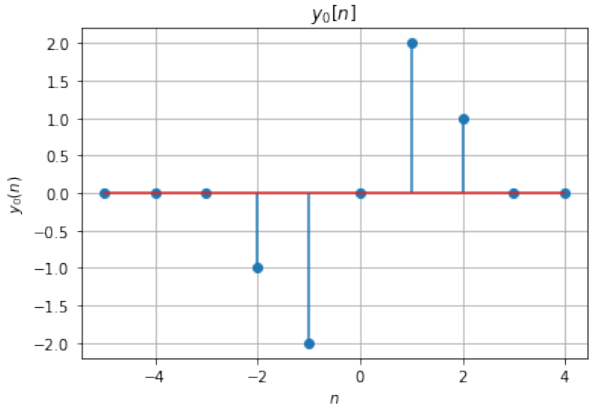

Fig. 0: Plot of $y_0[n]$

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

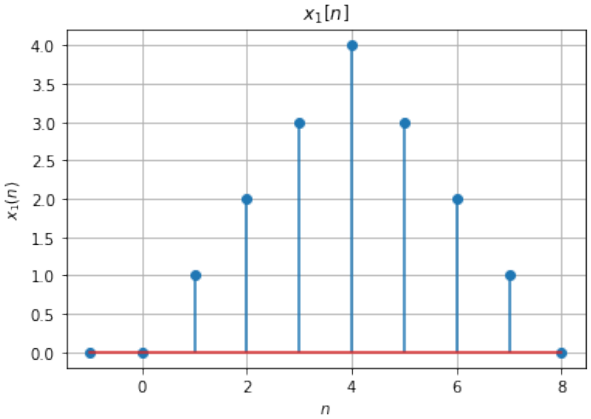

Fig. 0: Plot of $x_1[n]$

Solution

Notice that

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

Since the system is LTI,

$$y[n] = y_0[n-2] + 2y_o[n-4] + y_0[n-6] \quad (0.0.2)$$

and we get sequence $y_1[n]$ shown here as the output for $x_1[n]$:

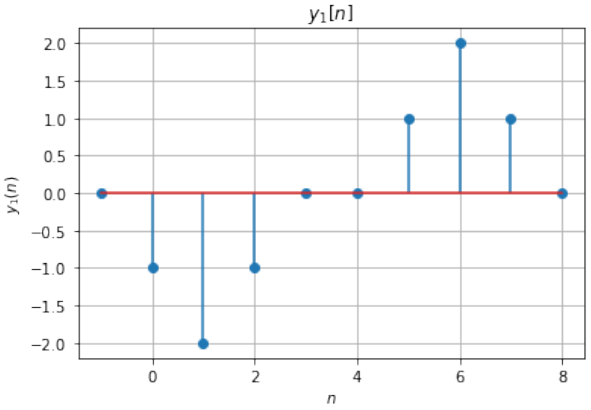

Fig. 0: Plot of $y_1[n]$