

EE3900 : Quiz-1

Nelakuditi Rahul Naga - AI20BTECH11029

Download all python codes from

https://github.com/Rahul27n/EE3900/blob/main/Quiz_1/Quiz_1.py

and all latex-tikz codes from

https://github.com/Rahul27n/EE3900/blob/main/Quiz_1/Quiz_1.tex

1 QUESTION: 2.34(B)

The impulse response of the given system is:

2 SOLUTION

The Z-transform of the impulse response is obtained by :

$$H(z) = \frac{-z^2 - 2z + 2z^{-1} + z^{-2}}{z + 2 + z^{-1}} \quad (2.0.1)$$

$$H(z) = z^{-1} - z \quad (2.0.2)$$

Therefore the impulse response is given by :

$$h(n) = [-1, 0, 1] \quad (2.0.3)$$

The plots of input, output and impulse response are given by:

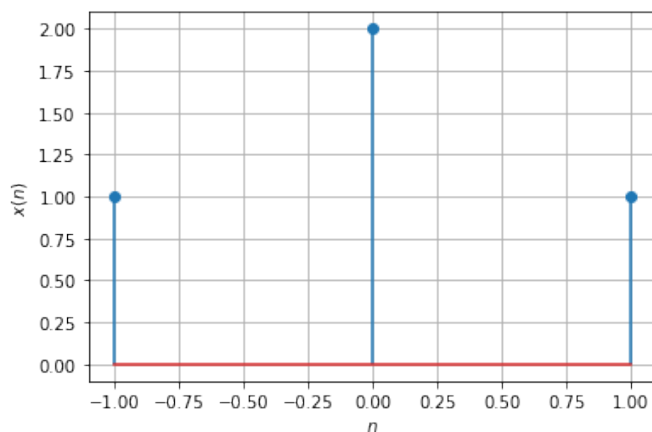


Fig. 0: $x(n)$

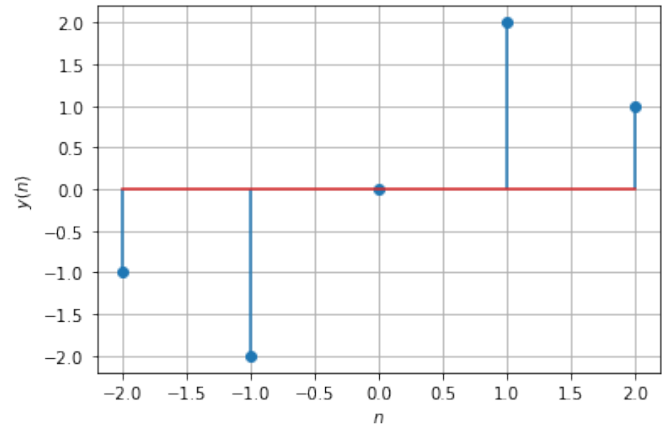


Fig. 0: $y(n)$

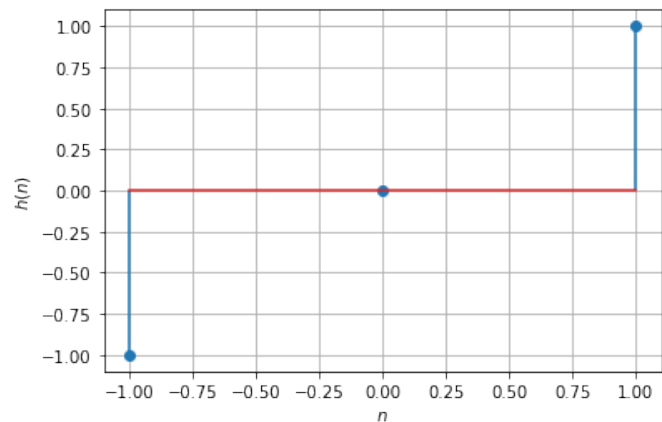


Fig. 0: $h(n)$