Exam-1

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Download all the python codes from

latex-tikz codes from

Fig. 0: plot of y

1 PROBLEM

(Q 2.22 a) For each of the pairs of sequences in following figure, use discrete convolution to find the response to the input $x[n]$ of the linear time-invariant system with impulse response $h[n]$
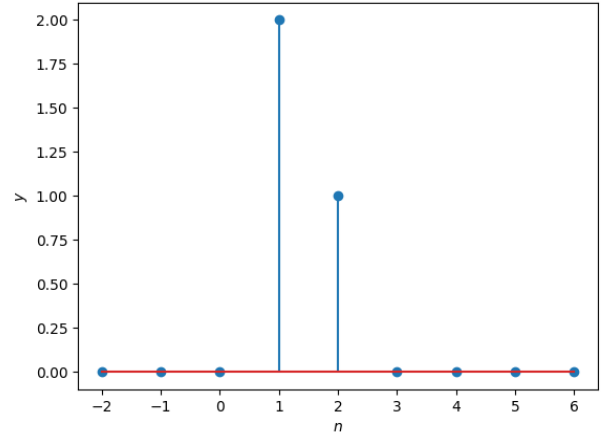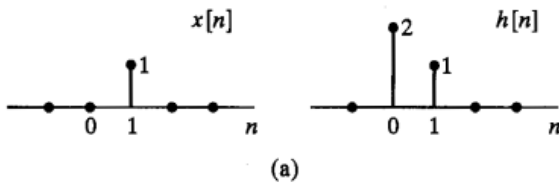

Fig. 0: Given Plot

2 SOLUTION

$$y[n] = x[n] * h[n] \qquad (2.0.1)$$

$$= \sum_{k=-\infty}^{\infty} x[k]h[n-k] \qquad (2.0.2)$$

From the input signal figure

$$x[n] = \delta[n-1] \qquad (2.0.3)$$

from (2.0.1) and (2.0.3), we get

$$y[n] = \delta[n-1] * h[n] \qquad (2.0.4)$$

$$= h[n-1] \qquad (2.0.5)$$