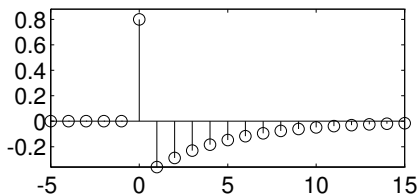
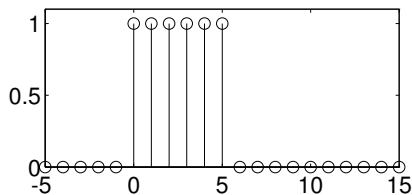


**PROBLEM:**

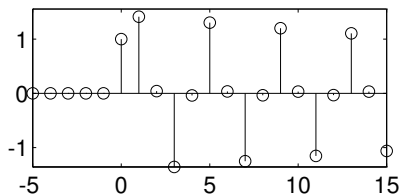
IMPULSE RESPONSE: J



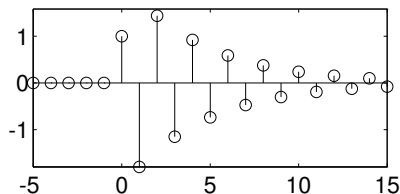
IMPULSE RESPONSE: K



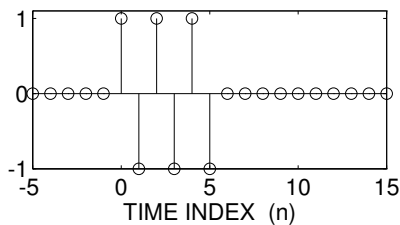
IMPULSE RESPONSE: L



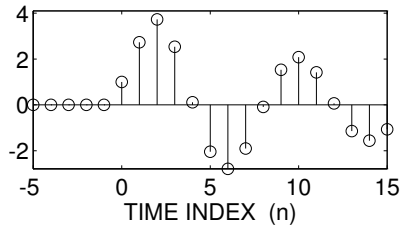
IMPULSE RESPONSE: M



IMPULSE RESPONSE: N



IMPULSE RESPONSE: O



For each of the impulse-response plots (J, K, L, M, N, O), determine which one of the following systems (specified by either an  $H(z)$  or a difference equation) matches the impulse response.

$$\mathcal{S}_1 : y[n] = -0.96y[n-2] + x[n] + \sqrt{2}x[n-1] + x[n-2]$$

$$\mathcal{S}_2 : y[n] = 0.8y[n-1] + 0.8x[n] - x[n-1]$$

$$\mathcal{S}_3 : H(z) = \frac{1 - z^{-1}}{1 + 0.8z^{-1}}$$

$$\mathcal{S}_4 : H(z) = \frac{1}{1 + 1.3152z^{-1} + 0.8649z^{-2}}$$

$$\mathcal{S}_5 : y[n] = -1.3152y[n-1] - 0.8649y[n-2] + x[n] - \sqrt{2}x[n-1] + x[n-2]$$

$$\mathcal{S}_6 : H(z) = \frac{1 + \sqrt{2}z^{-1} + z^{-2}}{1 - 1.3152z^{-1} + 0.8649z^{-2}}$$

$$\mathcal{S}_7 : y[n] = \sum_{k=0}^7 x[n-k]$$

$$\mathcal{S}_8 : y[n] = x[n] + x[n-1] + x[n-2] + x[n-3] + x[n-4] + x[n-5]$$

$$\mathcal{S}_9 : H(z) = 1 - z^{-1} + z^{-2} - z^{-3} + z^{-4} - z^{-5}$$