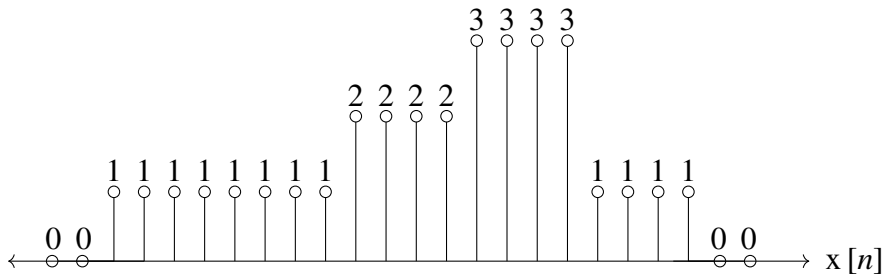


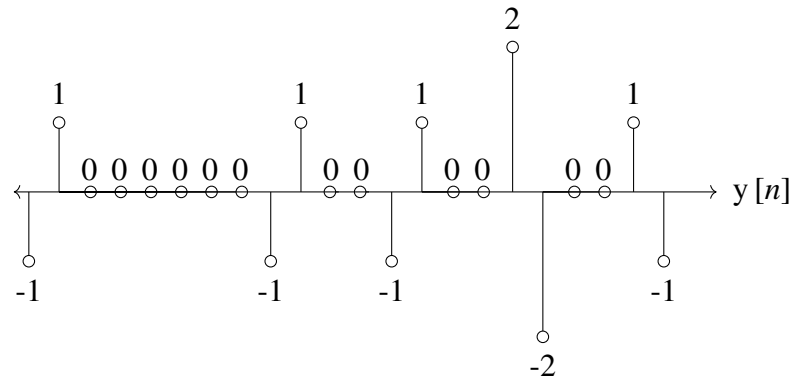
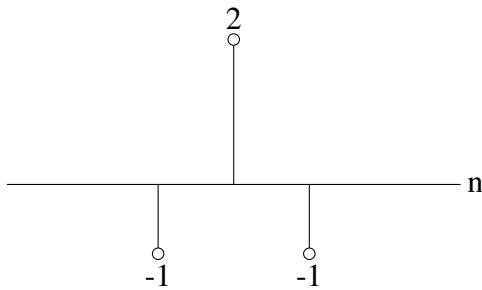
GATE IN22 44

EE23BTECH11043 - BHUVANESH SUNIL NEHETE*

Question: The input signal shown below



is passed through the filter with following taps



The number of non-zero output samples is _____.

Solution:

$$h[n] = -\delta[n] + 2\delta[n+1] - \delta[n+2] \quad (1)$$

$$y[n] = x[n] * h[n] \quad (2)$$

$$= x[n] * (-\delta[n] + 2\delta[n+1] - \delta[n+2]) \quad (3)$$

$$y[n] = -x[n] + 2x[n+1] - x[n+2] \quad (4)$$

The number of non-zero output samples is 10.