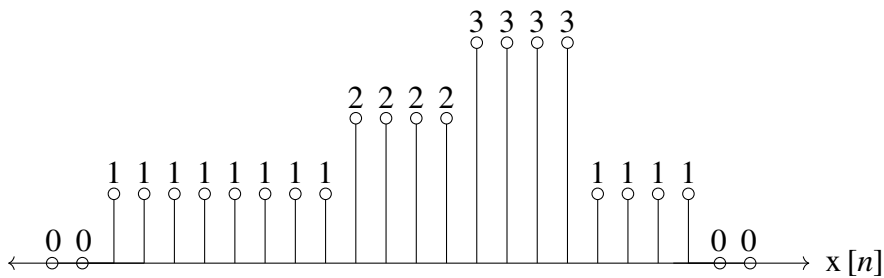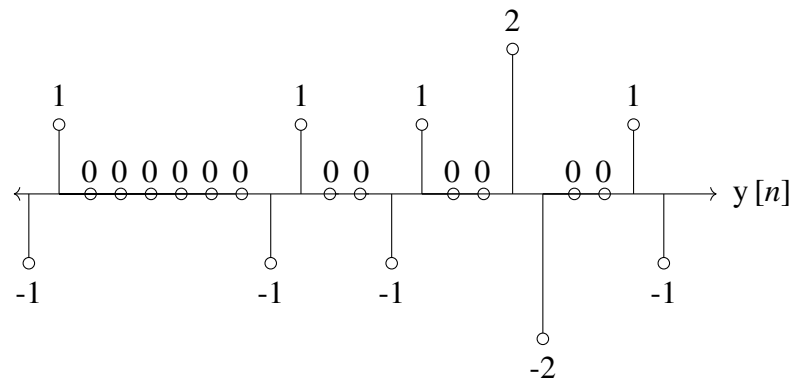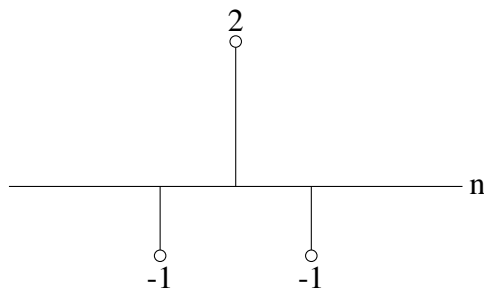# GATE IN22 44

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:

$$y[n] = x[n] * h[n] \tag{1}$$
$$= x[n] * (-\delta[n+1] + 2\delta[n] - \delta[n-1]) \tag{2}$$
$$y[n] = -x[n+1] + 2x[n] - x[n-1] \tag{3}$$

The number of non-zero output samples is 10.