Question 2
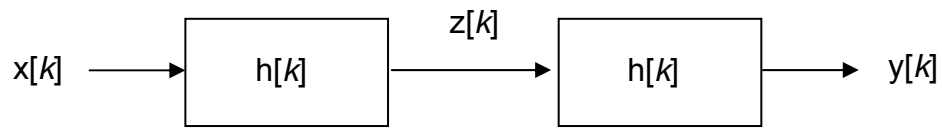
a) This question is about convolution. Use the **Table Method** to solve this question.

where

$$x[k] = \begin{cases} k & 0 \le k \le 2 \\ 0 & \text{otherwise} \end{cases}$$

and

$$h[k] = \begin{cases} k & 0 \le k \le 2 \\ 0 & \text{otherwise} \end{cases}$$
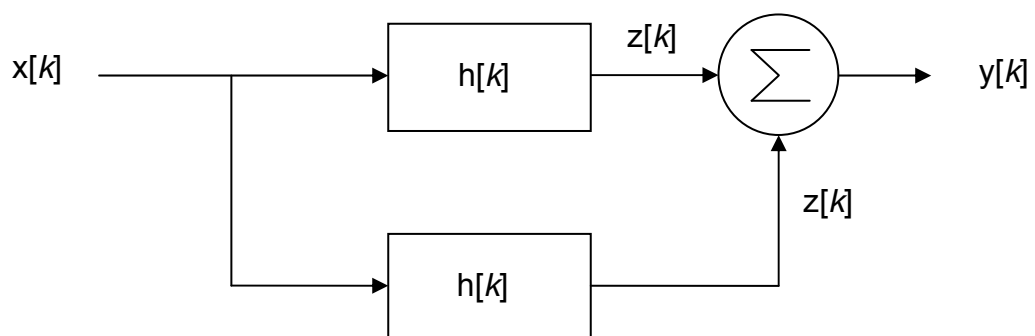
(i) Determine the intermediate signal $z[k]$. **[4 marks]**

(ii) Plot the intermediate signal $z[k]$. **[4 marks]**

(iii) Determine the output signal $y[k]$. **[4 marks]**

(iv) Plot the output signal $y[k]$. **[4 marks]**

b) Determine and plot the output response $y[k]$ for the following system, with input signal $x[k]$ and impulse responses $h[k]$ given in part a) of Question 2:

[9 marks]