Question 2

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

where

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

and

\[
h[k] = \begin{cases} 
  k & 0 \leq k \leq 2 \\
  0 & \text{otherwise}
\end{cases}
\]

(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]