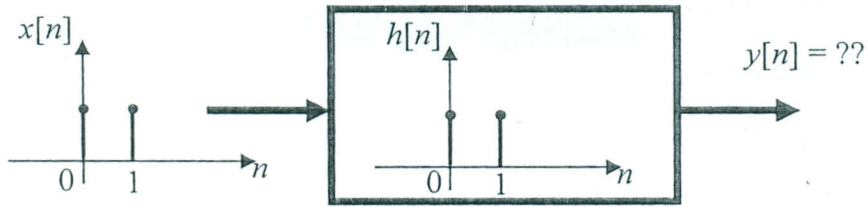




$$X(z) = \frac{2z}{z-0.5} \quad |z| < 0.5$$

d) Use z transform to calculate the corresponding output  $y[n]$  for the input  $x[n]$



e) A difference equation of a causal discrete LTI system is given by

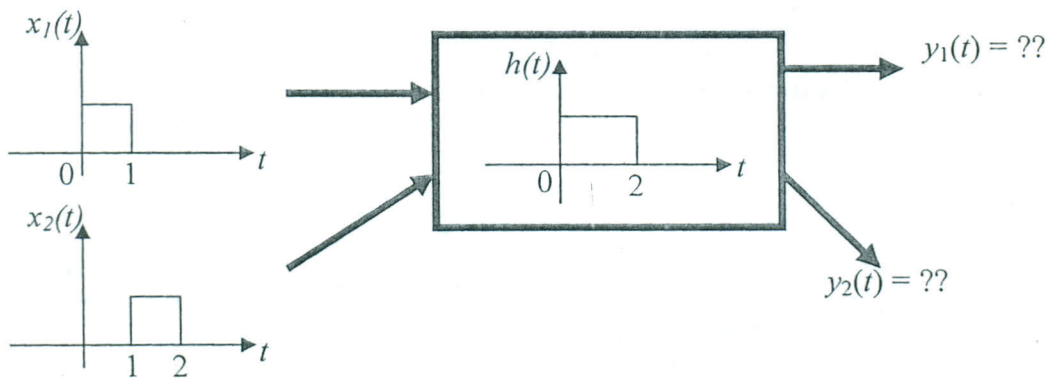
$$y[n-2] - 2y[n-1] - 3y[n] = x[n]$$

Using Z transform, find the system function  $H(z)$ , the impulse response of the system  $h[n]$  and the step response of the system  $s[n]$ . check the BIBO stability of the system.

**Question 5**

**[14 marks]**

Evaluate the output of the following system using analytical and graphical techniques.



Good Luck

Dr. Nihal Fayez