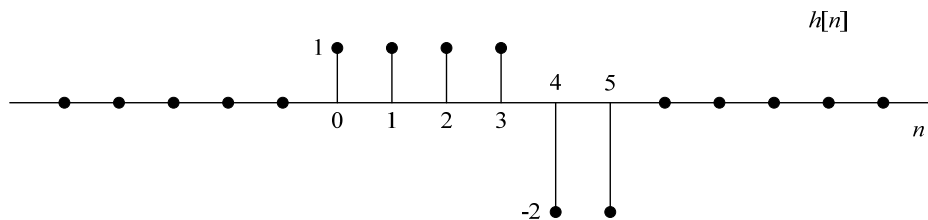# Homework No. 2
Due 16:20, Oct. 13, 2011

1. The impulse response of an LTI system $h[n]$ is shown below. (20%)

Determine the system output $y[n]$ to the input $x[n]=u[n-4]$.

2. Find and sketch $y[n]=x[n]*h[n]$ of the following the signals:

(1) $x[n]=(-1)^n\left(u[n]-u[n-5]\right)$ and $h[n]=u[n+2]$. (30%)

(2) $x[n]=u[n]-u[-n]$ and $h[n]=\begin{cases}\left(\dfrac{1}{2}\right)^n, & n\geq 0 \\ 4^n, & n<0\end{cases}$. (30%)

3. Evaluate the following continuous-time convolution integrals: (20%)

$$y(t)=2t^2\left[u(t+1)-u(t-1)\right]*2u(t+2)$$