Quiz 4

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1. Soru:

a-) $y[n] = 5y[n-1] + x[n]$

$y[n] = 5y[n-1] + \delta[n]$

$y[0] = 5y[-1] + \delta[0] = 5.0 + 1 = 1$

$y[1] = 5y[0] + \delta[1] = 5.1 + 0 = 5$

$y[2] = 5y[1] + \delta[2] = 5.5 + 0 = 25$

$\delta \rightarrow \begin{cases} 1, & n=0 \\ 0, & n<0 \\ 0, & n>0 \end{cases}$

b-) $y[n] = 5y[n-1] + u[n]$

$y[0] = 5y[-1] + u[0] = 5.0 + 1 = 1$

$y[1] = 5.y[0] + u[1] = 5.1 + 1 = 6$

$y[2] = 5.y[1] + u[2] = 5.6 + 1 = 31$

$u[n] = \begin{cases} 0, & n<0 \\ 1, & n \geq 0 \end{cases}$

2. Soru:

a-) $h(t) = (12e^{st})\,u(t)$ ve $x(t) = u(t)$

$x_1 = 12e^{st}$ $x_2 = ut$ olduğundan

$\frac{1-12e^{st}}{-5}(u^t)$ yanıt olur. $\frac{1-5^{\lambda t}}{-5}e$

b-) $x_1 = n.4^n$ $x_2 = (3)^n$ ise

$\frac{4.3}{(4-3)^2}\left[3^n - 4^n + \frac{4-3}{3} n 4^n\right]$ $U[n]$

$= 12\left[3^n - 4^n + \frac{1}{3} n 4^n\right]$ $U[n]$ olur.