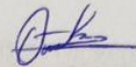


ELM 367 Ödev II

"Ödemi baka bir öğrenciden kopyalandı. Kendin yaptım"

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Soru 2)

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

$y[n] = 0 \quad n < 0$

$\left. \begin{array}{l} y[0] = 1 \\ y[1] = 1 \\ y[2] = 2 \\ y[3] = 6 \end{array} \right\} y[n] = n! u[n]$

b) $x[n] = a + b$

$y[n] = 0 \quad n < 0$

$\left. \begin{array}{l} y[0] = a + b \\ y[1] = a + b \\ y[2] = 2(a + b) \end{array} \right\} \text{Linear}$

c) $x[n] = \delta[n-5]$

$y[n] = 0 \quad n < 0$

$\begin{array}{l} y[0] = 0 \\ y[1] = 1 \\ y[2] = 2 \\ \vdots \end{array}$

$h[n-5] = (n-5)! u[n-5] \neq y[n] \quad x[n] = \delta[n-5]$

Not time invariant

Soru 3)

18. a) $h[n] = (1/2)^n u[n]$

netural $\Rightarrow h[n] \geq 0 \quad n \geq 0$

b) $h[n] = (1/2)^{|n|}$

$h[n] \neq 0 \quad n < 0$ not causal

c) $h[n] = u[n+2] - u[n-2]$

$h[n] \neq 0 \quad n < 0$ not causal

"Ödevi başka öğrenciler kopyalamadın. Kendin yaptım"

Ömer KÖRNER HOCAM

Ömer

SORU 4)

g.a) $h[n] = 3^n u[n]$

$n \rightarrow \infty$ $h[n]$ sınırlı
not stable

c) $h[n] = 3^n u[-n-1]$

$$\sum_{n=-\infty}^{-1} 3^n = 1 - \sum_{n=1}^{\infty} (1/3)^n$$

$$= 1 - \frac{1}{1 - 1/3} = \frac{1}{2} \text{ stable.}$$

e) $h[n] = (3/4)^{|n|} \cos(\pi n/4 + \pi/4)$

$n=1 \Rightarrow \cos(\pi/2) = 0$

$n=2 \Rightarrow \cos(3\pi/4) = \text{stable.}$

$(3/4)^{|n|} \Rightarrow$ n ile azalıyor

SORU 5)

10 a) $y[n] = h[n] * x[n]$

$$= \sum_{k=-\infty}^{\infty} a^k u[-k-1] u[n-k]$$

$$= \begin{cases} \sum_{k=-\infty}^n a^k & n \leq -1 \\ \sum_{k=-\infty}^{-1} a^k & n > -1 \end{cases}$$

$$= \begin{cases} \frac{a^n}{1-1/a} & n \leq -1 \\ \frac{1/a}{1-1/a} & n > -1 \end{cases}$$

b) $u[n] = 2^n u[-n-1]$

$$w[n] = u[n] * v[n] = \begin{cases} 2^{n+1} & n \leq -1 \\ 1 & n \geq 0 \end{cases}$$

$$y[n] = w[n-1] * u[n]$$

$$= w[n-1]$$

$$= \begin{cases} 2^{n-1} & n \leq 0 \\ 1 & n > 0 \end{cases}$$

c) $h[n] = 2^{n-1} u[-(n-1)-1] = v[n-1]$

$$y[n] = x[n] * h[n]$$

$$= x[n] * v[n-1]$$

$$= w[n-1]$$

$$= \begin{cases} 2^n & n \leq 0 \\ 1 & n > 0 \end{cases}$$