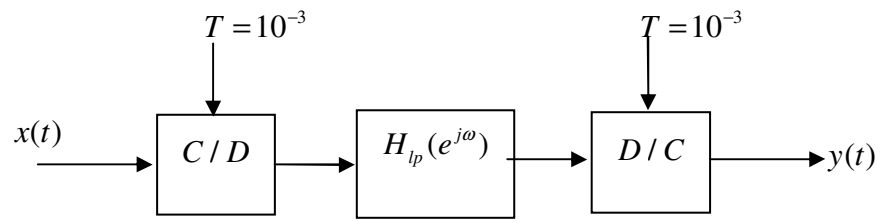


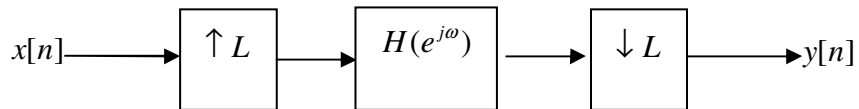


In The Name of God, The Merciful, The Compassionate  
Signals and Systems  
Department of Computer Engineering  
Sharif University of Technology  
Fall 2008 – CE 40-242  
Quiz #9  
28<sup>th</sup> Nov 2011

۱.



۲. با توجه به سیستم زیر، رابطه بین  $x[n]$  و  $y[n]$  را پیدا کنید.



$$H(e^{j\omega}) = \begin{cases} e^{-jL\omega} & |\omega| < \frac{\pi}{L} \\ 0 & \text{otherwise} \end{cases}$$

$$Z_1(e^{j\omega}) = \begin{cases} X(e^{jL\omega}) & |\omega| < \frac{\pi}{L} \\ 0 & \text{otherwise} \end{cases}$$

$$Z_2(e^{j\omega}) = Z_1(e^{j\omega}) \times H(e^{j\omega}) = \begin{cases} X(e^{jL\omega}) \times e^{-jL\omega} & |\omega| < \frac{\pi}{L} \\ 0 & \text{otherwise} \end{cases}$$

$$Y(e^{j\omega}) = Z_2(e^{j\frac{\omega}{L}}) = X(e^{j\omega}) \times e^{-j\omega} \quad \Rightarrow \quad y[n] = x[n-1]$$