

Assignment #6&7 CE242 : Signals & Systems
Dept. of Computer Engineering
Sharif University of Technology
Fall 2005

Distributed: 9/10

Due: 9/27

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I) Solve the following problems from Oppenheim :

6.10)

6.11)

6.21) d

6.28) a(iii,vii,viii,xi),b(iv,vi)

6.29) Extra Credit

7.21)

7.23)

7.25)

7.26)

7.28)

7.35)

II)

(Extra Credit)

Consider the following two systems that you have seen in your text book.

Downsampler: $y[n] = x[Mn]$

Upsampler : $y[n] = \begin{cases} x[\frac{n}{L}] & n = kL \\ 0 & \text{otherwise} \end{cases}$

In the first experiment we first downsample the signal $x[n]$ by M and then upsample it by L , and find $y_1[n]$; In the second experiment we first Upsample $x[n]$ by L and then Downsample it by M and find $y_2[n]$; Find the condition between M and L so that :

$$y_1[n] = y_2[n]$$