

Indian Institute of Science

E9-252: Mathematical Methods and Techniques in Signal Processing

Instructor: Shayan G. Srinivasa

Home Work #3, Fall 2016

Late submission policy: Points scored = Correct points scored $\times e^{-d}$, $d = \#$ days late

Assigned date: Oct. 23rd 2016

Due date: Oct. 31st 2016 by end of the day.

PROBLEM 1: Referring to the book by Vetterli and Kovacevic, solve problems 4.17 (parts (a)-(d)) and 4.18. (70 pts.)

PROBLEM 2: A student performs circular convolution instead of the usual linear convolution when filtering sequences using a dyadic wavelet filterbank. Assuming that all other operations are the same and the filters are normalized to unit energy, does Parseval's energy conservation hold? Justify mathematically. (30 pts.)