UNIVERSITY OF TEXAS AT DALLAS
Telecommunications Engineering

TE3302 Signals & Systems
Problem Set #5: Linear Time Invariant (LTI) Systems and Convolution

Date assigned: September 27, 2000
Date due: October 04, 2000

Homework is due at the beginning of class. Late homework will not be accepted.

Reading: *Signals & Systems*, Sections 2.2 and 2.3

You may use any computer program to help you solve these problems, check answers, etc.

Problem 5.1 Convolution Sum
Problem 2.3 in *Signals & Systems*. Please justify your answers.

Problem 5.2 Convolution Sum
Problem 2.6 in *Signals & Systems*. Please justify your answers.

Problem 5.3 Convolution Sum
Problem 2.21 (a) in *Signals & Systems*. Please justify your answers.

Problem 5.4 Convolution Integral
Problem 2.10 (a) in *Signals & Systems*. Please justify your answers.

Problem 5.5 Convolution Integral
Determine $y(t) = x(t) * h(t)$ for $x(t) = e^{-t}u(t)$ and $h(t) = e^{-2t}u(t)$. Please show your steps graphically.