NEW YORK CITY COLLEGE OF TECHNOLOGY

THE CITY UNIVERSITY OF NEW YORK

Department of Computer Engineering Technology

300 Jay Street, Brooklyn, NY 11201-1909

CET 3625 – Lab 3 Laplace Transforms

Instructions: Solve the following differential equations using the methods covered in class

For each differential equation find the general solution and evaluate at t = 10 to find the particular solution.

Due: Week 12

1. $y'' + 4y' + 4y = e^{-2t}$
   $y(0)=0, y'(0)=4$
2. $y'' + y = \sin t$
   $y(0)=1, y'(0)=4$

3. $y'' - 6y' + 9y = te^{3t}$
   $y(0)=1, y'(0)=4$

4. $y'' + 2y' + 10y = -6e^{-t}\sin 3t$
   a. $y(0)=0,\ y'(0)=1$

5.
   a. $y'+z'-3z=0$
   b. $y''+z'=0$
   c. $y(0)=y'(0)=0, z(0)=4/3$