CONCORDIA UNIVERSITY
FACULTY OF ENGINEERING AND COMPUTER SCIENCE
DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
APPLIED ORDINARY DIFFERENTIAL EQUATIONS - ENGR 213/2
2nd MID - TERM EXAMINATION, Tuesday November 22, 2011 (Fall 2011)

Instructor: Dr. Georgios H. Vatistas
DURATION OF THE EXAM: ONE HOUR

This is a closed book exam. Solve all questions. Only faculty approved calculators are allowed. Good luck

Problem No. 1. Solve the following boundary value problems:

(a) $4y'' - 4y' - 5y = 0, \quad y(1) = 0, \ y'(1) = 5$

(b) $4y'' + 4y = 0, \quad y(0) = 0, \ y'(\pi) = 0$

Problem No. 2. Solve the given differential equation by the method of undetermined coefficients:

$$y'' + 4y' + 5y = 35 e^{-4x}, \quad y(0) = -3, \ y'(0) = 1$$

Problem No. 3. Solve this differential equation:

$$y'' - 2y' + y = e^x$$