Form No. T631

Philadelphia University **Student Name:**
Faculty of Engineering **Student Number:**

Dept. of Communications & Electronics
Second Exam, First Semester: 2004/2005

Course Title: Engineering Analysis I	**Date: 18/12/2005**
Course No: (630201)	**Time Allowed: 1 Hours**
Lecturer: Dr. Abdel-Rahman Al-Qawasmi	**No. of Pages: 1**
Dr. Wael Al-Sawalmeh	

Question 1: ***(5 Marks)***

Objective: About Higher Order Ordinary Differential Equations.

Solve the following Euler-Cauchy Higher order Differential Equation

$$x^3 y''' + 2x^2 y'' = x$$

Question 2: ***(5 Marks)***

Objective: About Laplace Transform

a- Find the Laplace Transform of:

1- $f(t) = \cosh(\frac{1}{2}t)$ 2- $f(t) = e^{3t-1}$

b- Find the Inverse Laplace transform of:

$$F(s) = \frac{4}{(s+3)^2 - 4}$$

Question 3: ***(5 Mark)***

Objective: Second Order ordinary Differential Equations

Solve the following Differential Equation and find the Particular Solution:

$$y'' + \frac{1}{2}y' - \frac{3}{16}y = 0 \qquad y(0) = 1, y'(0) = \frac{1}{4}$$

Question 4: ***(5 Mark)***

Objective: Method of Reduction of Order

Use the method of reduction of order to find the basis of solution y_2 for the differential equation:

$$y'' - \frac{2}{x}y' + (\frac{2}{x^2} - 1)y = 0$$

if $y_1 = xe^x$