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: 6/01/2005**
Course No: (630201)	**Time Allowed: 1 Hours**
Lecturer: Dr. Abdel-Rahman Al-Qawasmi	**No. of Pages: 1**

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

Objective: About Higher Order Ordinary Differential Equations.

Solve the following Differential Equation

$$y''' - 3y'' + 2y' = \ln|x^2|$$

Question 2: ***(6 Marks)***

Objective: About Laplace Transform

a- **Derive** the Laplace Transform of:

$$f(t) = e^t \sin(2t)$$

b- Find the Inverse Laplace Transform of:

$$F(s) = \frac{1}{s(s^2+1)} e^{-2s}$$

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

Objective: Higher Order ordinary Differential Equations

Solve the following initial value problem

$$x^3 y''' + xy' - y = 0$$

$y(1) = 1$

$y'(1) = 0$

$y''(1) = -1$