

Philadelphia University
Faculty of Engineering

Student Name:
Student Number:

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

Course Title: Engineering Analysis I	Date: 9/8/2005
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 Euler-Cauchy Higher order Differential Equation

$$x^3 y''' - 3x^2 y'' + 6xy' - 6y = 0$$

Question 2: *(6 Marks)*

Objective: About Laplace Transform

a- Find the Laplace Transform of:

$$f(t) = \frac{1}{16} (\sin 2t - 2t \cos 2t)$$

b- Find the Inverse Laplace Transform of:

$$F(s) = \frac{1}{s[(s-a)^2 + 4]}$$

Question 3: *(5 Mark)*

Objective: Higher Order ordinary Differential Equations

Solve the following Differential Equation:

$$y''' - 4y' = 10 \cos x - 5 \sin x$$

Question 4: *(4 Mark)*

Objective: Laplace Transform

Use Laplace transform to solve the initial value problem;

$$y'' - 2y' - 3y = 8e^{-t} + \delta(t - \frac{1}{2})$$