Philadelphia University **Student Name:**

Faculty of Engineering **Student Number:**

Dept. of Communication Engineering

First Exam, First Semester: 2011/2012

Course Title: Engineering Analysis (1)-Section 2	**Date: 14/11/2011**
Course No: (650201)	**Time Allowed: 1 Hour**
Lecturer: Dr. Mohammed Mahdi	**No. of Pages: 1**

Question 1: ***(3 Marks)***

Objectives: This question is about verification of solution.

Consider the following D.E $\ddot{y}+2\dot{y}-3y=0$ **; verify that** $y=C_1e^{x}+C_2e^{-3x}$ **is its solution.**

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

Objectives: This question is about exact D.E.

Given the following D.E, it is required to solve it as an exact form. Then find its particular solution if y (-1) = 8.

$$(2xy^2+4)-2(3-x^2y)\dot{y}=0$$

Question 3: ***(6 Marks)***

Objectives: This question is about the separation of variables solution method.

Use separation of variable method to solve the following D.E, then find its particular solution if y (0) = 0.

$$\dot{y} = e^{2x}e^{y}$$

Question 4: ***(5 Marks)***

Objectives: This question is about solving Bernoulli non-linear equation.

Given the following non-linear D.E, it is required to reduce it into linear first ODE, then find its particular solution if y (0) = 0.5.

$$\dot{y}+(x+1)y=e^{x^2}y^3$$