

United Arab Emirates University
College of Sciences, Department of
Mathematical Sciences
Differential Equations
Fall Semester 2009 – 2010, Final

Section: 51

ID Number:

Name:

1. Using the Laplace transform, solve (IVP)

$$y'' + 16y = \cos 4x, \quad y(0) = 0, \quad y'(0) = 1$$

2. Solve differential equation

$$(-3x + 4y)dx + (-5x + y)dy = 0$$

3. Solve differential equation

$$3x(xy - 2)dx + (x^3 + 2y)dy = 0$$

4. Find solution of the system of differential equation

$$x' + y' + 2y = 0$$

$$x' - 3x - 2y = 0$$

5. Solve differential equation

$$xy^4 dx + (y^2 + 2)e^{-3x} dy = 0$$

6. Solve Initial Value Problem

$$(\cos x \sin x - xy^2) dx + y(1 - x^2) dy = 0, \quad y(0) = 2$$

7. Find general solution

$$y'' - y' + y = 2 \sin 3x$$

8. Find Power series solution

$$y'' - 2xy' + y = 0$$