

NDU

MAT 235

Ordinary Differential Equations

Exam # 2

Duration: 60 minutes

Name: _____

Section: A

Instructor: Dr. Ishac Zoghbi

Grade: _____

1) (22 points) Use the method of undetermined coefficients to solve the following differential equation $y'' + 2y' + 5y = 3e^{-x} \cos x + 6e^{-x} \sin x$.

2) (22 points) Solve the initial value problem $y'' - 2y' + y = \frac{2e^x}{x^3}$, for $x > 0$ with $y(1) = y'(1) = e$.

3) (24 points) Solve the differential equation $x^2y'' - 2xy' + 2y = x \ln x$, for $x > 0$.

4) (32 points) Find the generalized power series solution in powers of x , of the differential equation $y'' + 2xy' + 4y = 0$.

