



*Kingdom of Saudi Arabia*  
*King Abdulaziz University*

**Faculty of Science –Mathematics Department**  
**Second Mid-Term Exam (90 Minutes) - (204 Math).**  
**2/9/1434 H – 10/7/2013 A.D. Summer Semester**  
**1433-1434 H**

**Model A**

<b>Name:</b>	<b>Section:</b>
<b>Student's I.N. :</b>	<b>Serial Number:</b>

$Q_1$	$Q_2$	$Q_3$	$Q_4$	$Q_5$	<b>Total Marks (25)</b>

**(Answer the following questions)**

1 Determine the form of a particular solution of

**[5 Marks]**

$$y'' - 2y' + y = 3e^x$$

2 Prove that the IVP:

**[4 Marks]**

$x^2 y'' - 4xy' + xy = 3, y(1) = 4, y'(1) = 2$  has a unique solution

3 Solve  $y'' + 3y' + 2y = \frac{1}{1 + e^x}$

[7 Marks]

4 Solve the differential equation:

[7 Marks]

$$y'' - 9y = 9 \cos 2x$$

5 Solve  $x^2y'' - 4xy' + 6y = \ln x^2$

[7 Marks]