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 B

Name:	Section:
Student's I.N. :	Serial Number:

Q_1	Q_2	Q_3	Q_4	Q_5	Total Marks (25)

(Answer the following questions)

1   Prove that the IVP: **[4 Marks]**

$$(x + 1)^2 y'' + xy' - y = 5 \, , y(2) = 1, y'(2) = 2 \quad \text{has a unique}$$
solution.

2   Determine the form of a particular solution of   **[5 Marks]**

$$y'' + 2y' + y = 5 \, e^{-x}$$

3   Solve the differential equation: [7 Marks]

$$y'' - 4y = 4 \sin 2x$$

4   Solve $y'' + 3y' + 2y = \dfrac{1}{1 + e^x}$ [7 Marks]

5   Solve $x^2 y'' - 4xy' + 6y = \ln x^2$ [7 Marks]