

# 國立彰化師範大學 101 學年度碩士班招生考試試題

系所： 資訊工程學系積體電路設計碩士班

科目： 工程數學

☆☆請在答案卷上作答☆☆

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1. Solve the differential equation:

$$6yy' + 5x = 0. (15\%)$$

2. Solve the differential equation with the initial values  $y'(0) = 4$ ,  $y(0) = 4$ :

$$y'' - 4y = 0. (15\%)$$

3. Solve the differential equation with the initial values  $y'(0) = 0$ ,  $y(0) = 1$ :

$$y'' + 2y' + y = 0. (20\%)$$

4. Solve the differential equation:

$$y''' - 3y' + 4y = 0. (15\%)$$

5. Solve the differential equation:

$$(x^2 - x)y'' + (3x - 2)y' + y = 0. (20\%)$$

6. Solve the differential equation with the initial values  $y'(0) = 1$ ,  $y(0) = 1$ :

$$y'' - y = x. (15\%)$$