系別：電機工程學系
　　　積體電路與計算機系統組

科目：工程數學 (僅含線性代數、機率學、常微分方程、複變函數)

考試日期：3月2日(星期日) 第2節　　　　　本試題共 4 大題， 1 頁

1.　(25%) Find the particular solution of the following differential equation.

$$y' + 4y = 1.4, \ y = ce^{-4x} + 0.35, \ y(0) = 2$$

2.　(25%) Solve the line system.

$$x_1 - x_2 + x_3 = 0$$
$$-x_1 + x_2 - x_3 = 0$$
$$10x_2 + 25x_3 = 90$$
$$20x_1 + 10x_2 = 80$$

3.　(25%)(a)Find the Real and imaginary parts of $f(z)=z^2+3z$ at $z=x+iy$. (b)Calculate the complex value of $f(z)$ at $z=1+3i$.

4.　(25%)Let X be a continuous random variable with the density function

$$f(x)= \begin{cases} 1/4 & \text{if } x \in (-2,2) \\ 0 & \text{otherwise.} \end{cases}$$

Using the method of distribution functions, find the probability density functions of $Y=X^3$.