淡江大學97學年度碩士班招生考試試題

系別：電機工程學系
電機工程學系機器人工程碩士班

科目：數　學（含線性代數、機率學）

B組　積体电路与计算机系统组
通讯系统组

准帶項目請打「V」	
V	簡單型計算機

本試題共 1 頁，5 大題

【1】Determine the basis for subspace S, S consists of all vectors $(x, y, 0, x-y, x+y, z)$ in R^6 and determine the dimension of the subspace. (20%)

【2】Let $A=\begin{bmatrix} -3 & 1 & 0 \\ 4 & -2 & 1 \end{bmatrix}$, find the reduced form of A and produce a matrix Ω such that $\Omega A = A_R$, where A_R is the reduced form of A. (20%)

【3】Find the solution by Crammer's rule $\begin{cases} x_1 - 3x_2 - 4x_3 = 1 \\ -x_1 + x_2 - 3x_3 = 14 \\ x_2 - 3x_3 = 5 \end{cases}$ (20%)

【4】If the probability of producing a defective screw is P=0.01, what is probability that 100 screws will contain more than 2 defectives. Using Poisson approximation to find out the solution. (20%)

【5】Four coins are tossed. Two of them fall within view of an observer, who sees that they are both heads. What is the probability, to this observer, that exactly three of the coins come up heads? (20%)