國立臺南大學 104 學年度 **機電系統工程研究所碩士班** 招生考試　工程數學　試題卷

1. Find $2\dot{y}(t)+4y(t)=x(t),\ \ y(0)=3,\ \ x(t)=5,\ \ t\geq 0$ (25%)

2. Find the Inverse Matrix of A (25%)

   A= $\begin{bmatrix}4 & 6 & 5\\ 2 & 3 & 2\\ 1 & -5 & -2\end{bmatrix}$

3. Try to show the process of diagonalizing the (25%)

   matrix $A=\begin{bmatrix}0 & 1 & 1\\ 1 & 0 & 1\\ 1 & 1 & 0\end{bmatrix}$

4. Try to find out the differential equation with the general solution of $y=C_1 sinx+C_2 cosx$ (25%)