

國立臺南大學105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. Try to solve the differential equation as;



Subject to the condition of y(0)=0, where n is a constant. (15%)

2. Consider the quadratic form as



We would like to write above as, try to find the matrix *A* while. (15%)

3. Consider thesystem

 

try to find the general solution of *x*1(*t*) and *x*2(*t*) (20%)

4. To find the general solution. (25%)

$$x^{2}y^{"}-5xy^{'}+9y=0$$

5. To find the general solution (25%)

$$X^{'}=AX+G$$

$$A=\left[\begin{matrix}1&-4\\1&5\end{matrix}\right], G\left(t\right)=[\begin{matrix}e^{2t}\\t\end{matrix}]$$