

國立虎尾科技大學九十六學年度第二學期平時考(六)試題

班級:四電一甲 科目:工程數學(一) 時間:2008/6/6(星期五) 12:10-13:10

1. Find  $f(t)$  when  $F(s) = \frac{6}{s^3 + 6s^2 + 11s + 6}$ .

2. Calculate  $\int_0^{\infty} t \sin(5t) e^{-t} dt$ .

3. Determine the Fourier series of  $f(x) = \begin{cases} 0 & -\pi < x < 0 \\ \pi - x & 0 < x < \pi \end{cases}$  and

$$f(x) = f(x + 2\pi).$$

4. Expand  $f(x) = e^{-x}$ ,  $-\pi < x < \pi$ , in a complex Fourier series.