

**ELEC 255 tutorial. Practice 6.**  
**Continuous-Time Fourier Transform (I)**

STUDENT #: \_\_\_\_\_ MARKS: \_\_\_\_\_/20

**Problem 1: [5 marks/part]**

Using the Fourier transform analysis equation, find the Fourier transform of each of the following signals: (a)  $x(t) = e^{5t}u(-t-3)$ ; (b)  $x(t) = \delta(t+1)+\delta(t-1)$ .

**Problem 2: [5 marks/part]**

Consider the Fourier transform pair

$$e^{-|t|} \xleftrightarrow{\mathcal{F}} \frac{2}{1 + \omega^2}.$$

- (a) Use the appropriate Fourier transform properties to find the Fourier transform of  $te^{-|t|}$ .
- (b) Use the result from part (a), along with the appropriate Fourier transform property, to determine the Fourier transform of

$$\frac{4t}{(1 + t^2)^2}.$$