EEE235F

06/05/2005

MINI TEST 3

NAME: _____

STUDENT NO: _____

1.) Find a Fourier series representation of the following signal: (10 marks)

 $\mathbf{x}(t)$ - t 2 3 4

2.) The periodic impulse train is given by the following formula:

$$x(t) = \sum_{k=-\infty}^{\infty} \delta(t - nT)$$

Sketch this signal, and find its Fourier series representation (5 marks)

3.) A signal x(t) has the Fourier series representation

$$x(t) = \sum_{k=-\infty}^{\infty} c_k^x e^{jk\omega_0 t}$$

for some coefficients c_k^x , where $-\infty < t < \infty$ and $\omega_0 = 2\pi/T$. Find the Fourier coefficients c_k^v for the signal

$$v(t) = x(t)\cos\left(\frac{2\pi t}{T}\right).$$

(10 marks)