EE201 Signals & Systems

Fall 2016-2017

Homework 7

Due 21.11.2016

Question 1.

Find the Fourier transform of the following signals:

a) $x(t) = e^{-5t}u(t) + 3\delta(t - 5) + \pi$

b) $x(t) = 3\cos\left(4t - \frac{\pi}{3}\right) + \sin\left(6t + \frac{\pi}{3}\right)$

c) $x(t) = \begin{cases} 1 & \text{for } |t| \leq 1 \\ 0 & \text{for } T < |t| \leq 2 \end{cases}$ and $x(t)$ is periodic with fundamental period 4.

Question 2.

Find the frequency response of the LTI systems whose impulse responses are given as:

a) $h(t) = \begin{cases} 1 & \text{for } |t| \leq 1 \\ 0 & \text{elsewhere} \end{cases}$

b) $h(t) = e^{-5t}u(t) + e^{5t}u(-t)$