COLLEGE OF ENGINEERING & TECHNOLOGY

Department : **Electronics & Communications Engineering**
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Course : **Spectral Analysis**
Course Code : **EC321**

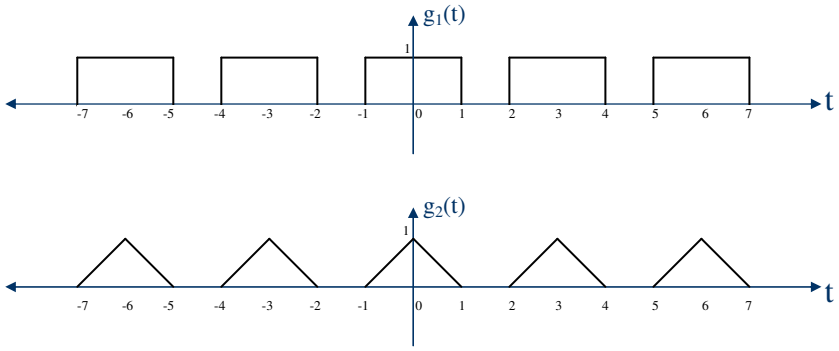
Sheet 7

1. Let *x(t)* be the unit impulse train expressed as $x(t)=\sum_{m=-\infty}^{\infty}\delta(t-mT_o)$ and $h(t)=tri(\frac{t}{2})$, determine and sketch $y(t) = x(t) \otimes h(t)$, at $T_o = 5$.

2. Knowing that the Fourier transform pair of a periodic signal $g_p(t)$ with a generation function $g(t)$ and period T_o, is given by the relation:

$$g_p(t)=\sum_{m=-\infty}^{\infty} g(t-mT_o) \quad \square\square\square \quad f_o \sum_{n=-\infty}^{\infty} G(nf_o)\,\delta(f-nf_o)$$

Calculate the Fourier Transforms of the following periodic signals:



3. Find the Fourier transform F.T. for the following signals.

   a. $g(t)=\dfrac{1}{\pi t}$
   b. $g(t)=\dfrac{-1}{\pi t^2}$
   c. $g(t)=u(t)$ interms of sgn function
   d. $g(t)=e^{j10\pi t}$