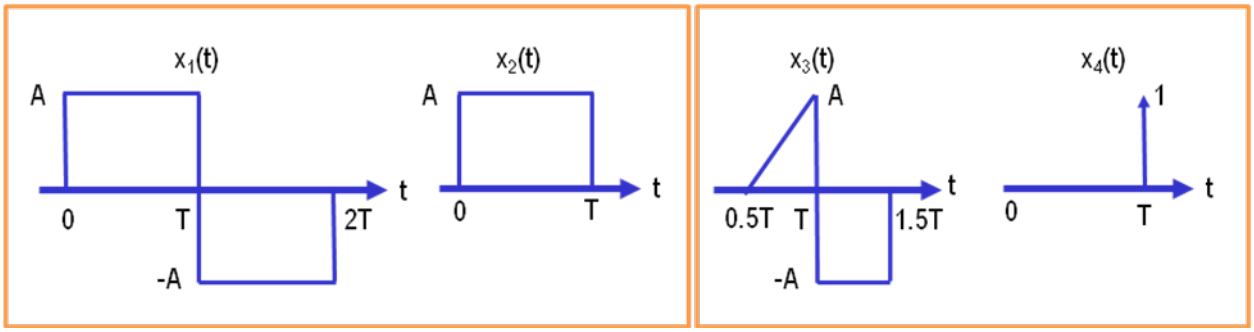
CARLETON UNIVERSITY

Department of Systems and Computer Engineering

SYSC 4600 – Digital Communications – Quiz 1 – Fall 2016

Professor H. Yanikomeroglu	**27 September 2016**	**100 pts, 20 mins**
Name:	**Student #:**	**E-mail:**

Q1 [60 pts] – Convolution: $y(t) = x_1(t) * x_2(t)$. Sketch y(t). $z(t) = x_3(t) * x_4(t)$. Sketch z(t).



Q2 [40 pts] – Power Calculations: In a WiFi system, the received power (P_{RX}) is one-billionth of the transmitted power (P_{TX}) due to path-loss. Find SNR when P_{TX} = 23 dBm, B = 10 MHz, N_0 = -174 dBm/Hz (AWGN power spectral density), and F = 8 dB (receiver noise figure). Note: $P_N = N_0BF$ (linear scale).