CARLETON UNIVERSITY
Department of Systems and Computer Engineering
SYSC 5608 – Wireless Communications Systems Engineering – Winter 2017
Professor H. Yanikomeroglu Quiz #1 for Background Check (15 mins) 10 Jan 2017

Name: **Student no**: **Email**:

- **(10 pts)** Sketch the signal constellation for 16 QAM.

- **(20 pts)** X is uniform random variable taking values in the range [0, 4].
  # Draw the PDF of X. # Draw the CDF of X.
  # Find the variance of X. # Find Prob(2<X<3). # Find Prob(X=3).

- **(20 pts)** Consider a wireless channel modelled as an LTI (linear, time-invariant) system with an impulse response $h(t) = a\delta(t) + a\delta(t-T/2)$, where a is a constant. Let us assume that $x(t)$ is the transmitted signal representing one single bit; it is a rectangular function with amplitude 1 and duration $[0, T]$. Find the received signal $y(t)$.