CARLETON UNIVERSITY

Department of Systems and Computer Engineering

SYSC 5608 Wireless Communications Systems Engineering **Winter 2018**

Professor H. Yanikomeroglu **QUIZ 2** **18 January 2018**

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Q1. BER Calculation in a 2-Path Channel

A large file composed of 0's and 1's is to be transmitted through a wireless channel. Binary 1 is represented by the rectangular function $x(t)$ with amplitude A and duration $[0, T]$; binary 0 is represented by $-x(t)$.

Consider a wireless channel modelled as an LTI (linear, time-invariant) system with an impulse response $h(t) = a\delta(t) + a\delta(t-T)$, where a is a constant and T is the bit duration.

Assume that there is no background noise. Find the probability of bit error at the output of the receiver detector.