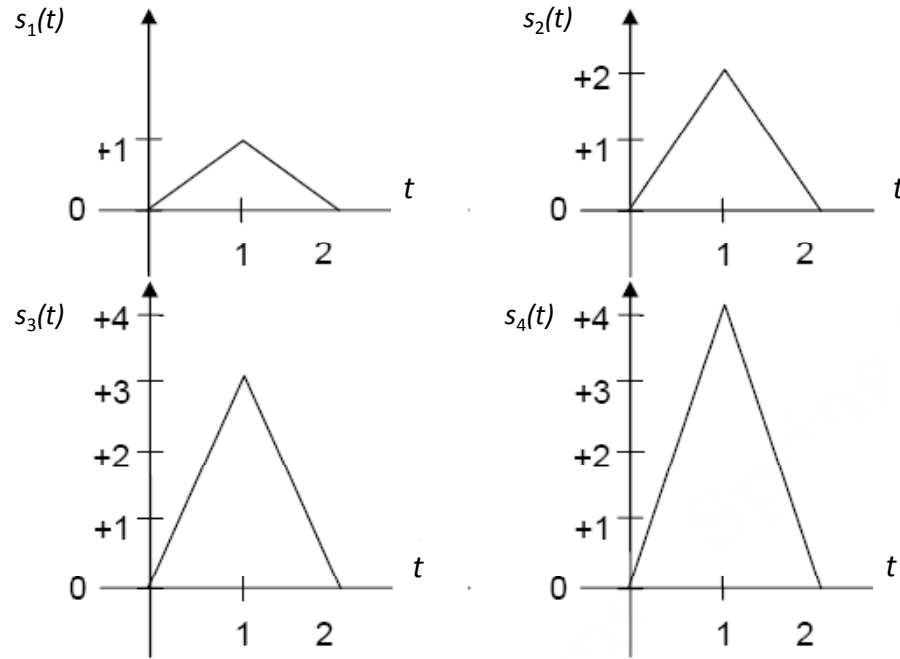


Cairo University - Faculty of Engineering
ELC N316 - Communications II Quiz - Spring 2009

Solve the following question. Please show ALL your work. Unjustified answers *will not* be given any credit. Maximum grade is 10 points. Good Luck!



Consider the four waveforms shown in the figure above.

1. (3 points) By inspection, determine a set of orthonormal basis functions for the above signal set. what is the average symbol energy E_s ?
 2. (3 points) Plot the constellation diagram of the set in terms of E_s and draw the decision regions assuming equally likely symbols. Label all points and axes.
 3. (4 points) What is the exact probability of error for this constellation?
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