



DEPARTMENT OF ELECTRONICS &
COMMUNICATION
Digital Communication (Code: ECEM-101)



Date: 31/08/2017 Deadline: Monday (06/09/17) Morning *Homework 1 for M.Tech (CIT) ECE (I Sem)*

1. Problem number 3.8 from the Book Digital communication by Simon Haykin.
2. Let X be a random variable with mean 2 and variance 4, Y another random variable with mean 3 and variance 6. Assume X and Y are independent. Define two new random variables $W = 2X + 3Y$ and $Z = 3X - Y$. Compute the covariance of W and Z .
3. Let X be uniformly distributed random variable in interval $[-1,1]$ and Y be another uniformly distributed random variable in the same range i.e., $[-1,1]$. Define another random variable $Z = X + Y$, find the density of Z . (Hint: Use the fact that density of sum of two random variables is convolution of the densities)
4. Problem number 3.9 from the Book Digital communication by Simon Haykin.
5. Problem number 3.11 from the Book Digital communication by Simon Haykin.
6. Problem number 3.19 from the Book Digital communication by Simon Haykin.