Institute INAOE

Department of Electronics

Ms program

DIGITAL COMUNICATIONS

Homework1: Density and Distribution

1. Random variable X has the values x1=2, x2=3, x3=-1, x4=1.5.
   P(X=-1)=P(X=2)=0.25
   P(X=1.5)=0.12; P(X=3=0.38.
   a. Find and plot Distribution function.
   b. Find and plot Density Function
   c. Find the probability that rv X is less than 2
   d. Find the probability that rv X is less than -1.
2. Random variable X is uniform in the interval [-1,3].
   a. Find and plot density and distribution.
   b. Find the probability that the rv X is less than2.
   c. Find the probability that rv X is equal to 0.
3. Generate uniform rv X in the interval [0,1] using randn.m.
   a. Find the density and distribution of the rv X.
   b. Plot histogram, probabilities in cells, and estimated PDF taking N=10000 values and 20 cells.
   c. Plot estimated distribution