ORDER STATISTICS

Q1. Suppose y1<y2<y3<y4<y5<y6 are the order statistics of a sample of 6 observations from a population having p.d.f.

 f(x) = 1, 0<x<1.

Find the distribution of median.

Q2. Suppose y1<y2<y3<y4<y5<..............<yn (n=2m+1) are the order statistics of a sample of observations from a population having p.d.f.

 f(x) = 1, 0<x<1.

Find the distribution of median.

Q3. Suppose y1<y2<y3<y4<y5<..............<yn are the order statistics of a sample of observations from a population having p.d.f.

 f(x) = 1/θ, 0<x< θ.

Find the distribution of the range of sample observations.

Q4. Suppose x1, x2,..........xn be a random sample drawn from a population having p.d.f.

 f(x) = 1, 0<x<1.

Find the distribution of x(r). Also, find the mean and variance of this distribution.

Q5. Suppose x1, x2,..........xn be a random sample drawn from a population having p.d.f.

 f(x) = 2x, 0<x<1.

Find the distribution of x(1), x(n), x(r).

Q6. Suppose a random sample of ‘n’ observation is taken from a population with density function f(x)=e-x, x$\geq $ 0. Find the density function of the range and also show the mean value of the range is $\left(1+\frac{1}{2}+\frac{1}{3}………+\frac{1}{n-1}\right)$.