**3.4 MATLAB CODE**

% Maxima of Uniform Random Varibles

% Large Sequence

N = input('Enter N: ')

n = input('Enter n: ')

K1 = zeros(1,N);

K2 = zeros(1,N);

% Generating Uniformly distributed random numbers

for x=1:N

u= rand(1,n);

% Recording maximum value

record=zeros(1,20);

max=0;

j=1;

for y=1:n

% Recording maximum value

record(1)=1;

if max < u(y)

max = u(y);

record(j)=y; j=j+1;

end

end

% Values for X2 and X3

K1(x)=record(2)-record(1);

K2(x)=record(3)-record(2);

end

% mean(K(x))

t=1:1:40;

[a,b] = hist(K1,t)

bar(b, a/sum(a))

title('Probability Histogram for X2')

ylabel('Probability')

xlabel(' Values of X2')

figure;

[a,b] = hist(K2,t)

bar(b, a/sum(a))

title('Probability Histogram for X3')

ylabel('Probability')

xlabel(' Values of X3')