American International University-Bangladesh (AIUB)

Department of Computer Science

Lab Report- 10

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SECTION : **G**

COURSE NAME : DATA COMMUNICATION

SEMESTER : 2020-2021, FALL

Title:

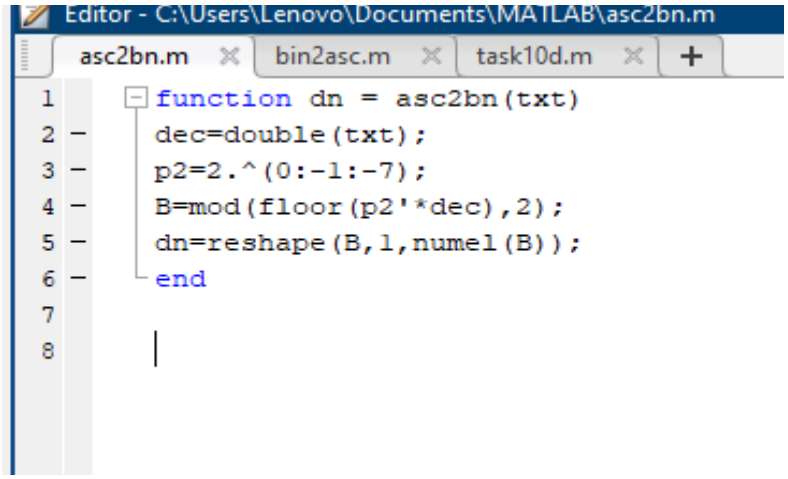
A Message Passing and Receiving Using Modulator (Part 2: Receiver Side)

Performance Task for Lab Report: (your ID = AB-CDEFG-H)

My ID: 17-34465-2

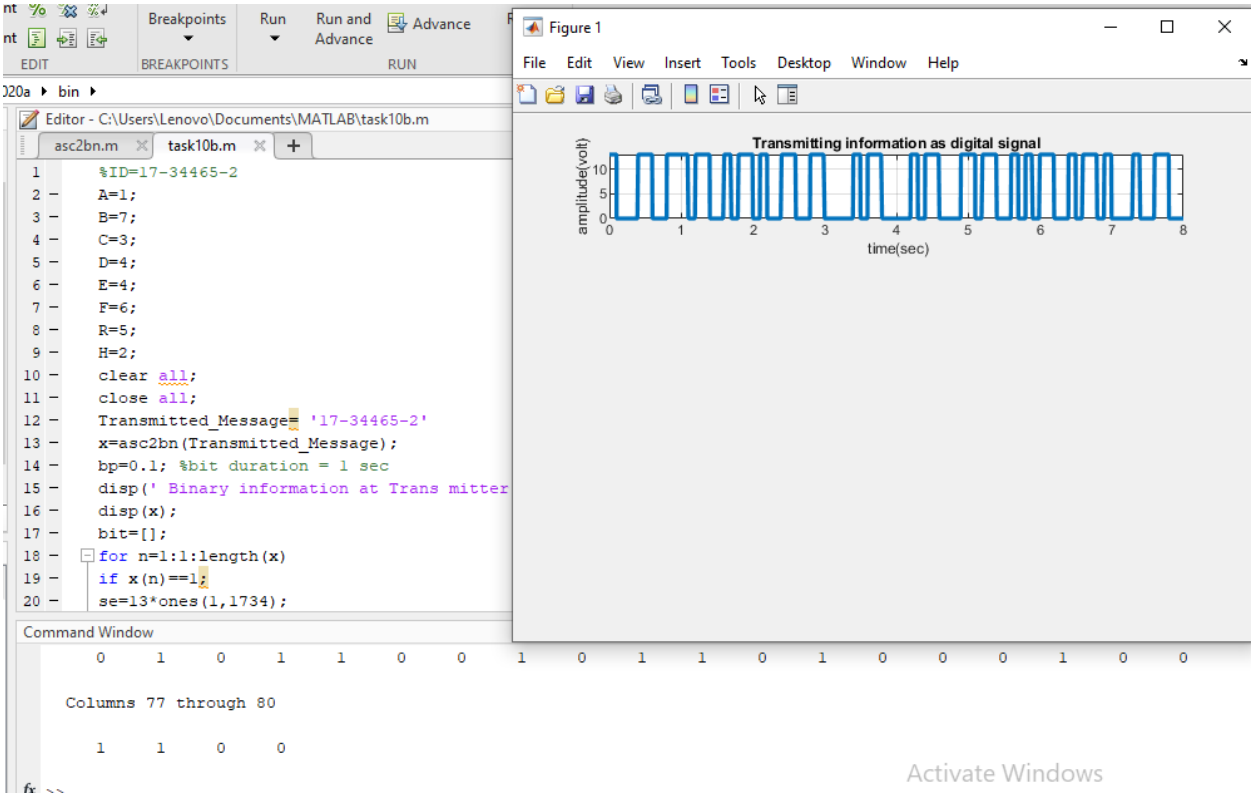
(a) Generate a function which will convert a text message into binary bit sequence.

Ans:



(b) Generate the carrier signal with the amplitude of AH and frequency of ABCD.

Ans:



(d) Perform PSK and QPSK modulation.

Ans:

Editor - C:\Users\Lenovo\Documents\MATLAB\bin2asc.m

asc2bn.m | bin2asc.m | task10d.m

```
function txt = bin2asc(dn)
L=length(dn);
L8=8*floor(L/8);
B=reshape(dn(1:L8),8,L8/8);
p2=2.^(0:7);
dec=p2*B;
txt=char(dec);
end
```

Editor - C:\Users\Lenovo\Documents\MATLAB\task10d.m

asc2bn.m | bin2asc.m | task10d.m

```
%ID:17-34465-2
Transmitted_Message= 'Red'
x=asc2bn(Transmitted_Message);
bp=.000001;
disp(' Binary information at Transmitter :');
disp(x);
bit=[];
for n=1:1:length(x)
 if x(n)==1;
 se=13*ones(1,1734);
 else x(n)==0;
 se=zeros(1,1734);
 end
 bit=[bit se];
end
t1=bp/1734:bp/1734:1734*length(x)*(bp/1734);
subplot(4,1,1);
plot(t1,bit,'lineWidth',2.5);grid on;
axis([ 0 bp*length(x) -.5 6]);
ylabel('amplitude(volt)');
xlabel(' time(sec)');
title('Transmitting information as digital signal');

%XXXXXXXXXXXXXXXXXXXXXXXX Binary-PSK modulation XXXXXXXXXXXXXXXXXXXXXXXXXXXX%
A=5;                                          % Amplitude of carrier signal
br=1/bp;                                                      % bit rate
f=br*2;                                                % carrier frequency
t2=bp/1734:bp/1734:bp;
```

Editor - C:\Users\Lenovo\Documents\MATLAB\task10d.m

asc2bn.m | bin2asc.m | task10d.m

```
46
47      %XXXXXXXXXXXXXXXXXXXX Binary PSK demodulation XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
48 -    mn=[];
49 -    for n=ss:ss:length(m)
50 -      t=bp/1734:bp/1734:bp;
51 -      y=cos(2*pi*f*t);                                        % carrier siignal
52 -      mm=y.*m((n-(ss-1)):n);
53 -      t4=bp/1734:bp/1734:bp;
54 -      z=trapz(t4,mm);                                              % intregation
55 -      zz=round((2*z/bp));
56 -      if(zz>0)                                             % logic level = (A+A)/2=0
57                                %becouse A*cos(2*pi*f*t+pi) means -A*cos(2*pi*f*t)
58 -        a=1;
59 -      else
60 -        a=0;
61 -      end
62 -      mn=[mn a];
63 -    end
64 -    disp(' Binary information at receiver :');
65 -    disp(mn);
66
67
68
69 -    bit=[];
70 -    for n=1:length(mn);
71 -     if mn(n)==1;
72 -     se=5*ones(1,100);
73 -     else mn(n)==0;
```