

MARKS:



AMERICAN INTERNATIONAL UNIVERSITY-
BANGLADESH (AIUB)

Data Communication Laboratory

LAB REPORT

ON

Study of Digital to Analog Conversion using MATLAB

Experiment No: 5

Section: [G]

Semester: Spring 20-21

Course Teacher: MD MEHEDI HASAN

Date of Performance: 16-Mar-21

Date of Submission: 22-Feb-21

Student Name: DEBORAJ ROY

Student ID: 19-40158-1

Performance Task:

My ID = **19-40158-1**

Here,

A= 1, B= 9, C= 4, D= 0, E= 1, F= 5, G= 8, H= 1.

(a) Convert DEF into binary bits (Decimal to Binary) by using ASCII table.

Ans:

D E F = 0 1 5

D = 00110000; E = 00110001; F = 00110101.

DEF = 00110000 00110001 00110101 %ASCII form ID part

(b) Show the modulated analog signal considering BASK, BFSK, BPSK, and QPSK using MATLAB.

1. Code for (BASK, BFSK, BPSK):

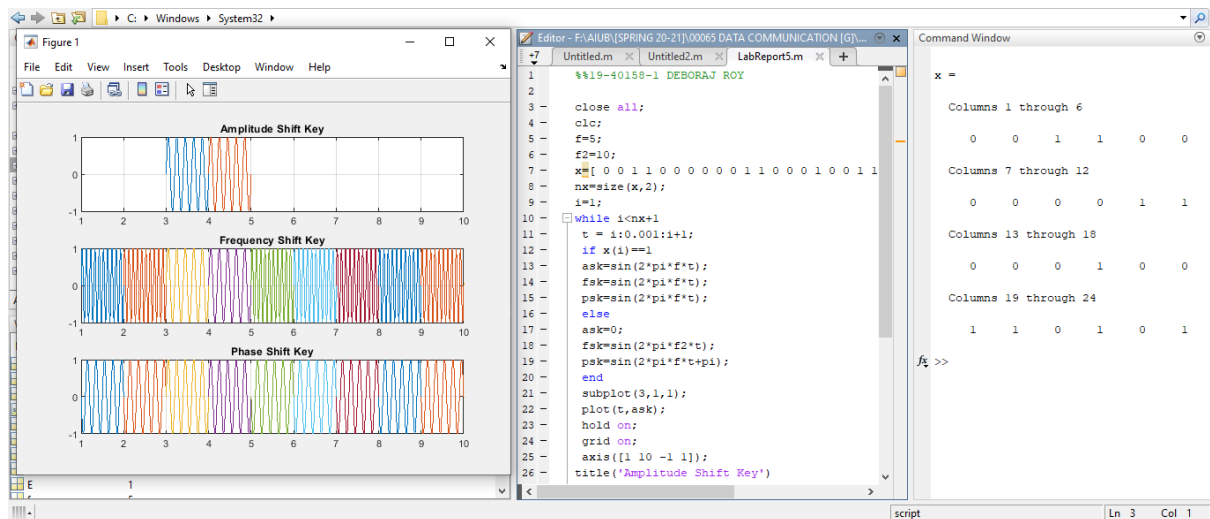
%% 19-40158-1 DEBORAJ ROY

```
close all;
clc;
f=5;
f2=10;
x=[ 0 0 1 1 0 0 0 0 0 0 1 1 0 0 0 1 0 0 1 1 0 1 0 1 ] % input signal ;
nx=size(x,2);
i=1;
while i<nx+1
    t = i:0.001:i+1;
    if x(i)==1
        ask=sin(2*pi*f*t);
        fsk=sin(2*pi*f*t);
        psk=sin(2*pi*f*t);
    else
```

```

ask=0;
fsk=sin(2*pi*f2*t);
psk=sin(2*pi*f*t+pi);
end
subplot(3,1,1);
plot(t,ask);
hold on;
grid on;
axis([1 10 -1 1]);
title('Amplitude Shift Key')
subplot(3,1,2);
plot(t,fsk);
hold on;
grid on;
axis([1 10 -1 1]);
title('Frequency Shift Key')
subplot(3,1,3);
plot(t,psk);
hold on;
grid on;
axis([1 10 -1 1]);
title('Phase Shift Key')
i=i+1;
end

```



2. Code for (QPSK):

%%19-40158-1 DEBORAJ ROY

```
close all;
clc;
f=10;
x=[ 00 11 00 00 00 11 00 01 00 11 01 01 ] % input signal ;
x1=[ 0 1 0 0 0 1 0 0 0 1 0 0 ];
x2=[ 0 1 0 0 0 1 0 1 0 1 1 1 ];
nx=size(x1,2);
i=1;
while i<nx+1
    t = i:0.001:i+1;
    if x1(i)==1
        psk1=sin(2*pi*f*t);
    else
        psk1=sin(2*pi*f*t+pi);
    end

    if x2(i)==1
        psk2=sin(2*pi*f*t+pi/2);
    else
        psk2=sin(2*pi*f*t+pi+pi/2);
    end

    QPSK = psk1+psk2;

    subplot(3,1,1);
    plot(t,psk1);
    hold on;
    grid on;
    axis([1 4 -1 1]);
    title('PSK1')

    subplot(3,1,2);
    plot(t,psk2);
    hold on;
    grid on;
    axis([1 4 -1 1]);
    title('PSK2')
```

```

subplot(3,1,3);
plot(t,QPSK);
hold on;
grid on;
axis([1 4 -2 2]);
title('QPSK')
i=i+1;
end

```

