

American International University, Bangladesh



Data Communication

Section: E

Semester: Summer 2021-22

Course Instructor: Tanjil Amin

Experiment no: 06

Experiment Name: Study of Digital to Analog Conversion using
MATLAB

Submitted by:

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Here, My Id=20-42119-1

E=1 F=1 G=9

So, 8 bit ASCII for my E, F, G are as follows

E= 10110001 [Even parity]

F=10110001 [Even parity]

G=10111001 [Even parity]

So, 24 bit stream are

101100011011000110110001

MATLAB Code

```
close all;
clc;
x=[1 0 1 1 0 0 0 1 1 0 1 1 0 0 0 1 1 0 1 1 0 0 0 1] ;
f=3;
fs=5000;
p=0;
sed=1;
nx=length(x);
i=1;

for i= 1:3:nx
    t=p*sed:1/fs:(p+1)*sed;

    if x(i)==0 && x(i+1)== 0 && x(i+2)==0; %000
        ask=1*sin(2*pi*f*t); % a sin (2* pi* f*t-phase)
        fsk=sin(2*pi*1*t);
        psk=sin(2*pi*f*t-0);
    elseif x(i)==0 && x(i+1)== 0 && x(i+2)==1; %001
        ask=1*sin(2*pi*f*t);
        fsk=sin(2*pi*2*t);
        psk=sin(2*pi*f*t-(pi/4));
    elseif x(i)==0 && x(i+1)== 1 && x(i+2)==0; %010
        ask=2*sin(2*pi*f*t);
        fsk=sin(2*pi*3*t);
```

```

        psk=sin(2*pi*f*t-(3*pi/2));
elseif x(i)==0 && x(i+1)== 1 && x(i+2)==1;
    ask=3*sin(2*pi*f*t);
    fsk=sin(2*pi*4*t);
    psk=sin(2*pi*f*t-(pi/2));
elseif x(i)==1 && x(i+1)== 0 && x(i+2)==0;
    ask=4*sin(2*pi*f*t);
    fsk=sin(2*pi*5*t);
    psk=sin(2*pi*f*t+(pi/4));
elseif x(i)==1 && x(i+1)== 0 && x(i+2)==1;
    ask=5*sin(2*pi*f*t);
    fsk=sin(2*pi*6*t);
    psk=sin(2*pi*f*t+(pi/2));
elseif x(i)==1 && x(i+1)== 1 && x(i+2)==0;
    ask=6*sin(2*pi*f*t);
    fsk=sin(2*pi*7*t);
    psk=sin(2*pi*f*t-pi);
else
    ask=7*sin(2*pi*f*t);
    fsk=sin(2*pi*8*t);
    psk=sin(2*pi*f*t+(3*pi/4));
end
p=p+1;
subplot(3,1,1);
plot(t,ask);
hold on;
grid on;
axis([1 10 -7 7]);
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')
end

```

Graph:

