Lab Report-02
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Course: DATA COMMUNICATION [F]
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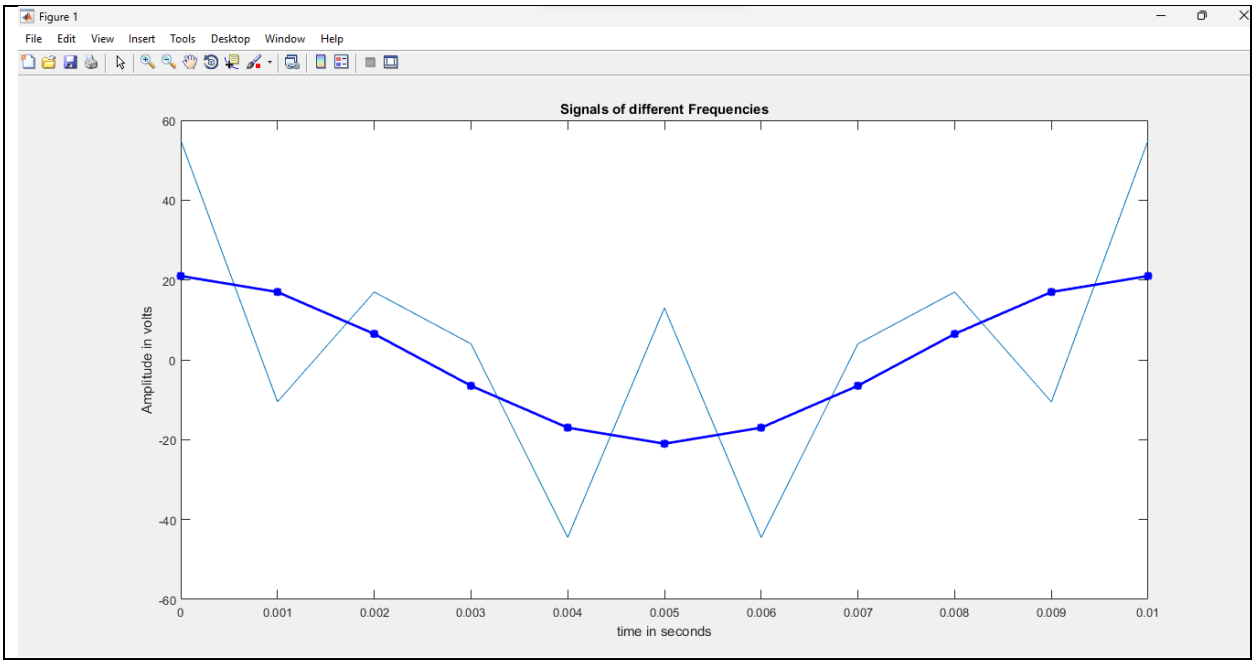
2(a)

```
%AB-CDEFG-H
%20-44213-3
%A1=GD; A2=AF
A1 = 34
A2 = 21
C = 4
F = 1
GD=34
AF=21
```

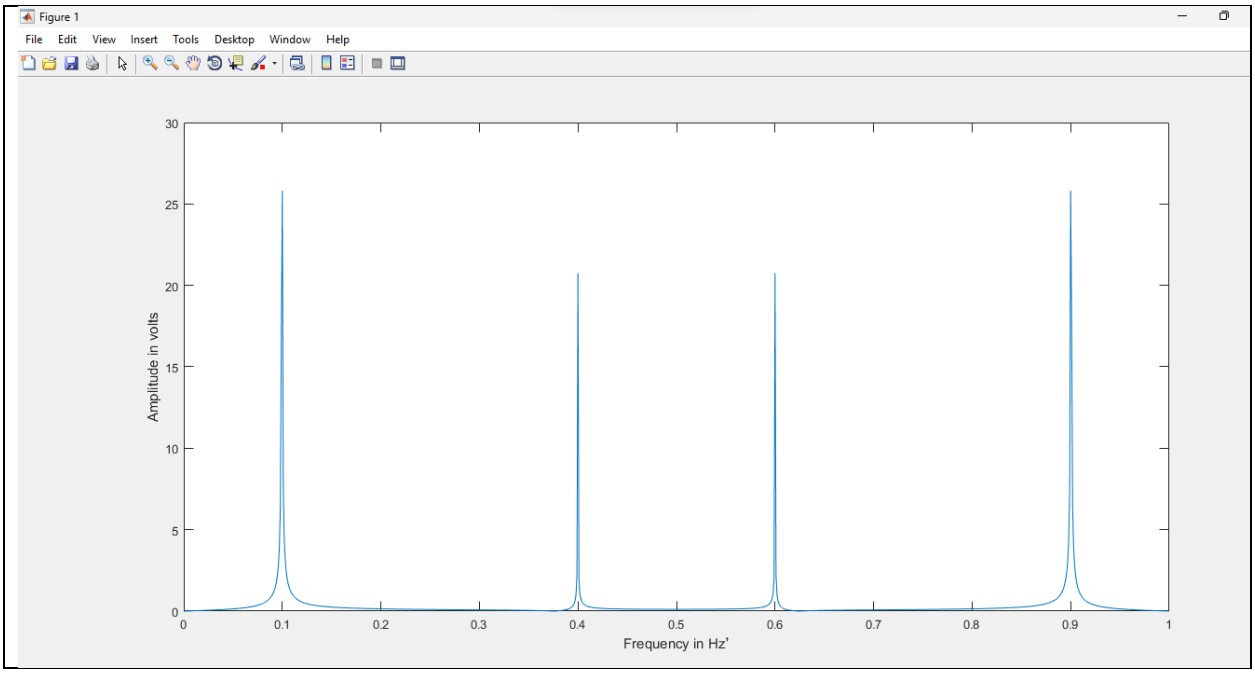
2(b)

```
%AB-CDEFG-H
%20-44213-3
%A1=GD; A2=AF
A1 = 34
A2 = 21
C = 4
F = 1
GD=34
AF=21
fs = 1000;
t = 0 : 1/fs : 0.01;
x1 = GD*cos( 2*pi*C*100*t );
x2 = AF*cos( 2*pi*F*100*t );
x3 = x1 + x2;
plot(t, x3)
hold on
plot(t, x2, 'b-*', 'LineWidth', 2)
hold off
xlabel('time in seconds')
ylabel('Amplitude in volts')
title('Signals of different Frequencies')
```



2(c)

```
%AB-CDEFG-H
%20-44213-3
%A1=GD; A2=AF
A1 = 34
A2 = 21
C = 4
F = 1
GD=34
AF=21
fs = 1000;
t = 0 : 1/fs : 1;
x1 = GD*cos( 2*pi*C*100*t );
x2 = AF*cos( 2*pi*F*100*t );
x3 = x1 + x2;
fx = fft(x3);
fx = fftshift(fx)/(fs/2);
f = 0 : 1/fs : 1;
plot(f, abs(fx))
xlabel('Frequency in Hz'')
ylabel('Amplitude in volts')
bandwidth = obw(x3, fs)
```



2(d)

```
%AB-CDEFG-H
%20-44213-3
%A1=GD; A2=AF
A1 = 34
A2 = 21
C = 4
F = 1
GD=34
AF=21
fs = 10000;
t = 0 : 1/fs : 0.1;
f = 6;
x3 = x1 + x2;
partition = linspace(-96, 96, 5);
codebook = linspace(-120, 120, 6);
[index, quants] = quantiz(x3, partition, codebook);
plot(t, x3, 'x', t, quants, '.')
legend('Original Signal', 'Quantized Signal')
```

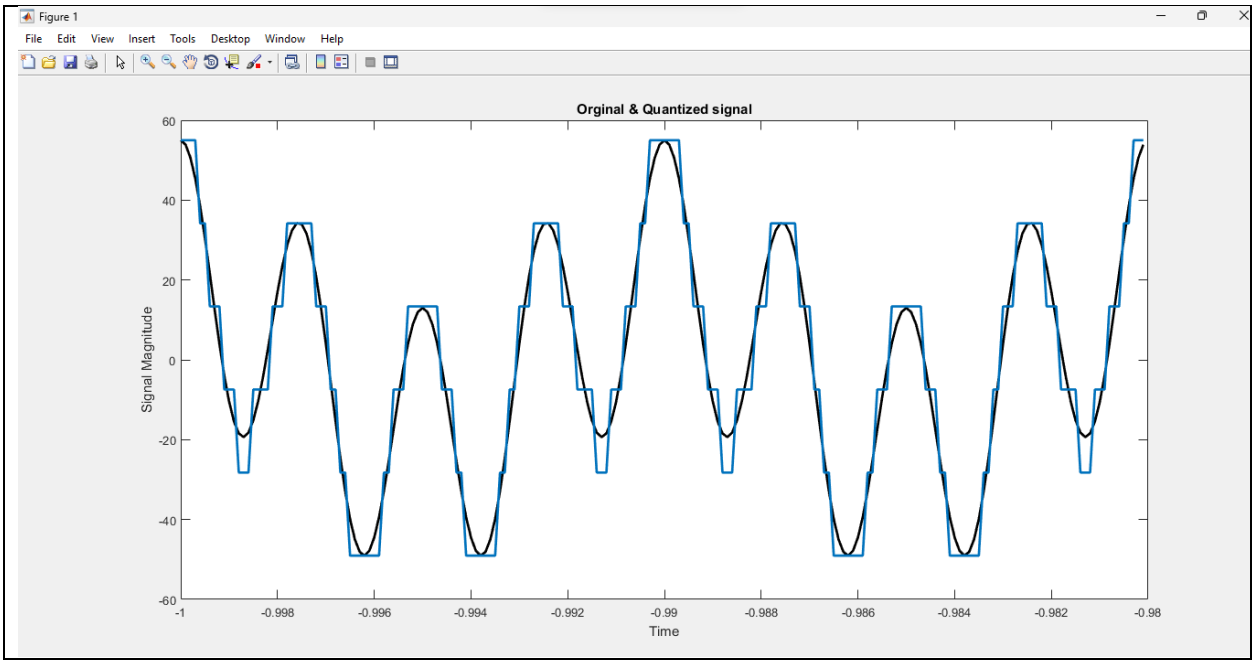


Figure 1
File Edit View Insert Tools Desktop Window Help
Orginal & Quantized signal
Signal Magnitude
Time
60
40
20
0
-20
-40
-60
-1
-0.998
-0.996
-0.994
-0.992
-0.99
-0.988
-0.986
-0.984
-0.982
-0.98