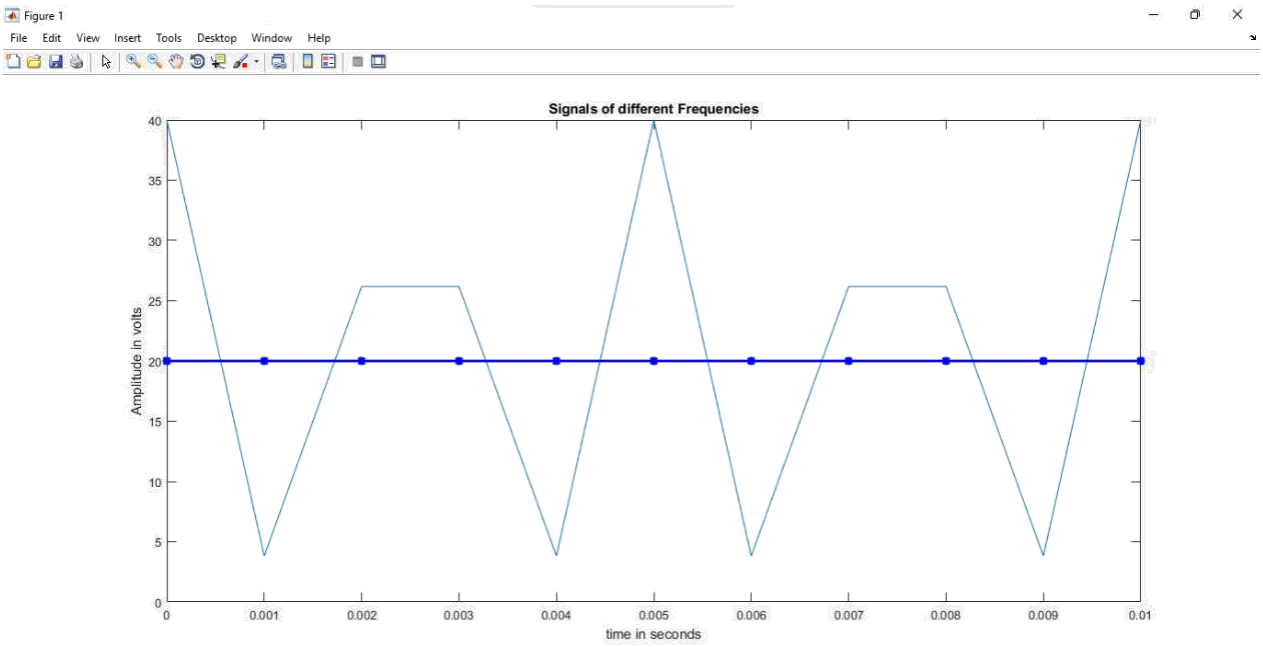
Lab Report-02

2(a)

```
 %AB-CDEFG-H
 %20-42277-1
 %A1=GD; A2=AF
 A1=72
 A2=27
 C = 4
 F = 7
 GD=72
AF=27
```

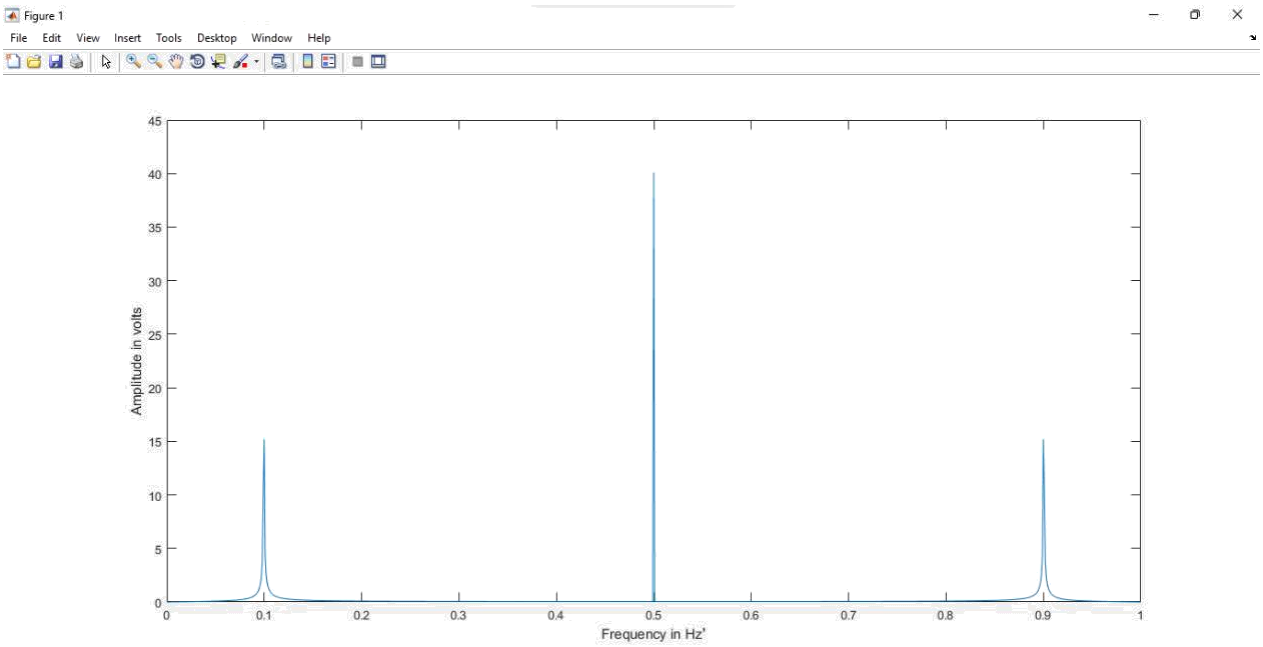
2(b)

```
%AB-CDEFG-H
%20-42277-1
%A1=GD; A2=AF
A1=72
A2=27
C = 4
F = 7
GD=72
AF=27
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
%20-44206-3
%A1=GD; A2=AF
A1=72
A2=27
C = 4
F = 7
GD=72
AF=27
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
%20-42277-1
%A1=GD; A2=AF
A1=72
A2=27
C = 4
F = 7
GD=72
AF=27
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')
```

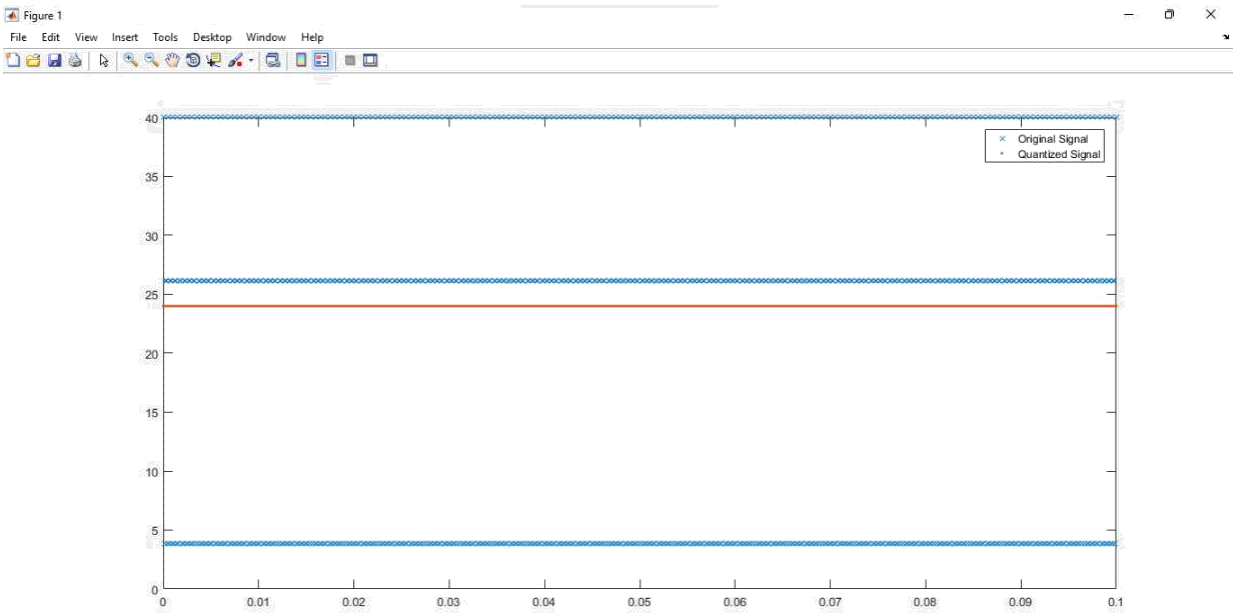


Figure 1
File Edit View Insert Tools Desktop Window Help
Original Signal
Quantized Signal
40
35
30
25
20
15
10
5
0
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1