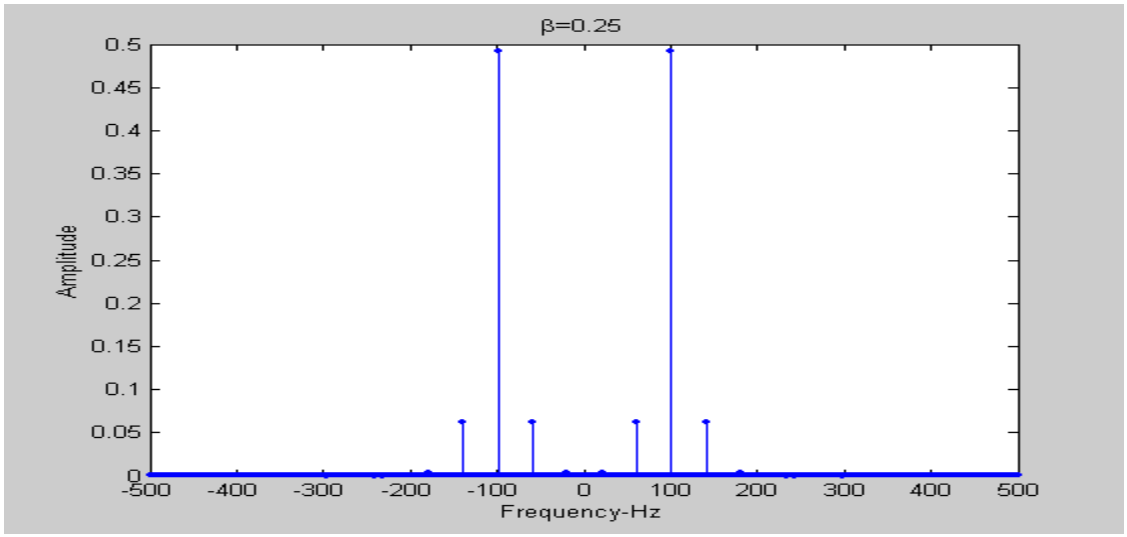
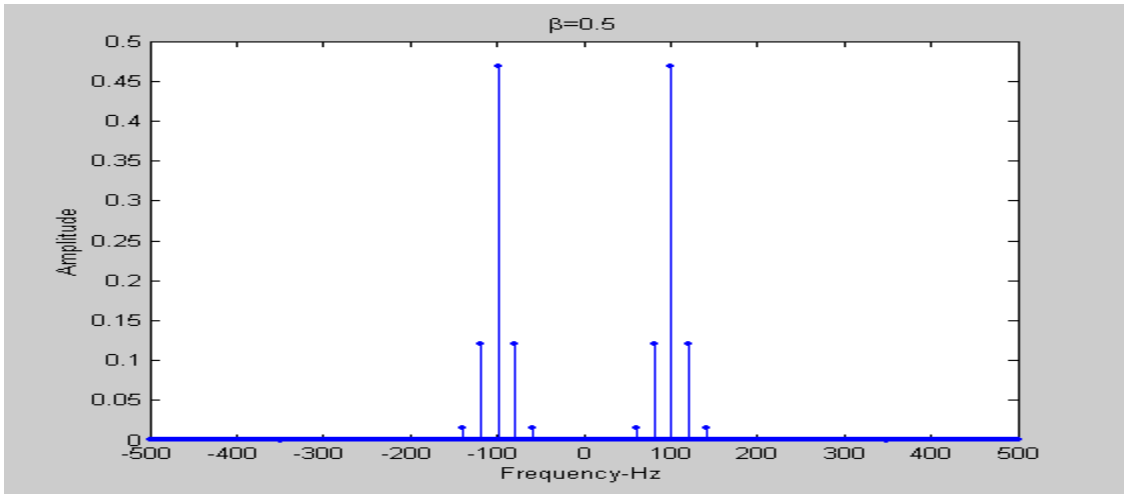
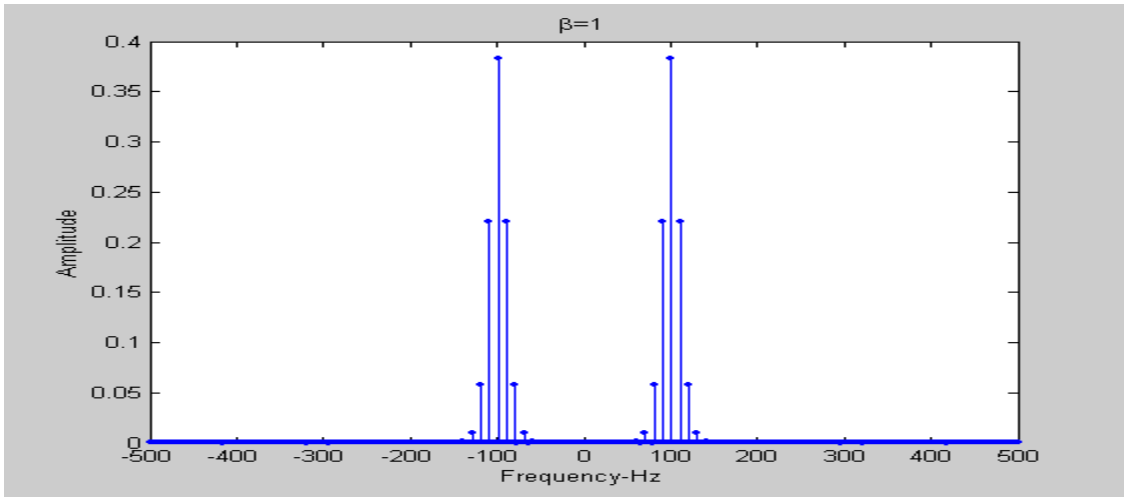
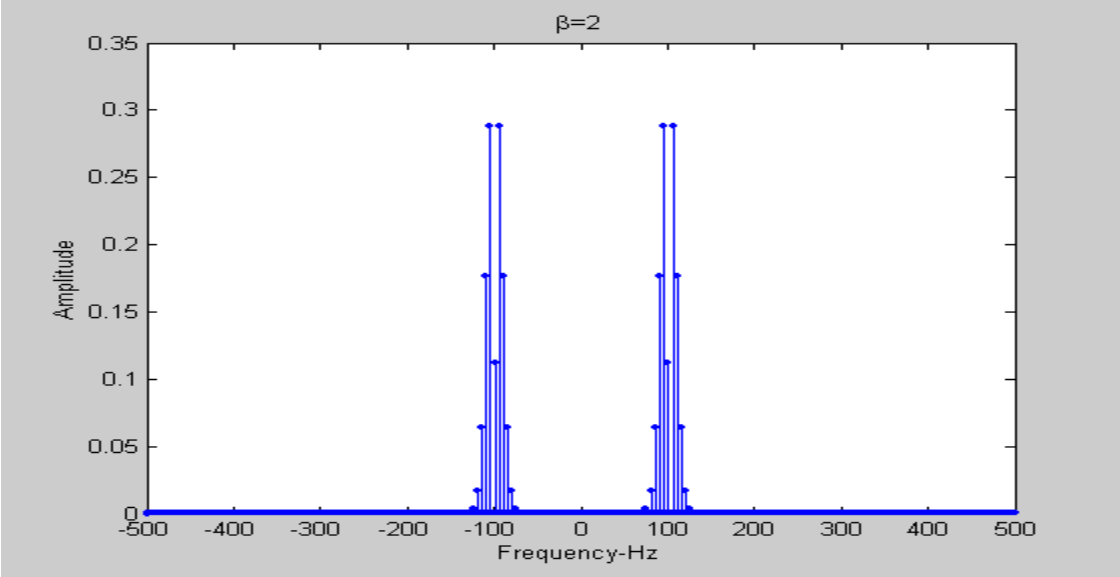

β=0.25
Amplitude
Frequency-Hz
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-500
-400
-300
-200
-100
0
100
200
300
400
500


β=0.5
Amplitude
Frequency-Hz
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-500
-400
-300
-200
-100
0
100
200
300
400
500


β=1
Amplitude
Frequency-Hz
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-500
-400
-300
-200
-100
0
100
200
300
400
500




```
function [beta]=spectrum(fm);
fs=1000;%sampling frequency;
delt=1/fs;
t=0:delt:1-delt;%time vector;
npts=length(t);
fn=(0:npts)-(fs/2);%frequency vector for plot;
fd=10;
beta=fd/fm; %assume Am=1;
m=beta*cos(2*pi*fm*t);%phase deviation;
xc=sin(2*pi*100*t+m);%modulated carrier;
asxc=(1/npts)*abs(fft(xc));
evenf=[asxc((npts/2):npts) asxc(1:npts/2)];
stem(fn,evenf,'.');
xlabel('Frequency-Hz')
ylabel('Amplitude');
```