Lab Assignment 2

Analog Modulation

1. Amplitude Modulation
2. Generate AM wave for different modulation indices(=1, >1and <1). Plot all the waveforms.

Program

clc;

close all;

clear all;

m = 1;

Am = 5; %Amp. of modulating signal

fm = 2000; %frequency of modulating signal

Tm = 1/fm;

t = 0:Tm/999:6\*Tm;

ym = Am\*sin(2\*pi\*fm\*t);

figure(1)

subplot(3,1,1)

plot(t,ym)

title('Modulating Signal')

%Carrier signal

Ac = Am;

fc = fm\*20;

Tc = 1/fc;

yc = Ac\*sin(2\*pi\*fc\*t);

subplot(3,1,2)

plot(t,yc)

grid on;

title('Carrier Signal')

%AM Modulation

y = Ac \* (1+m\*sin(2\*pi\*fm\*t)).\*sin(2\*pi\*fc\*t);

subplot(3,1,3)

plot(t,y)

title('Amplitude Modulated Signal')

grid on;

1. Generate an AM wave with message signal 10cos(20πt+10) and carrier -40Sin(2000πt+10)