//Name: Tushar Bhand

//Roll no:204A024

// AM signal(DSB\_FC)

clc;

clear;

close;

fm=5; // Message frequency

fc=50; // Carrier frequency

t=0:0.001:2;

p=length(t);

am=input("Enter the Information signal amplitude= ");

ac=input("Enter the carrier signal amplitude( ac>am )= ");

msgsignal=am\*cos(2\*%pi\*fm\*t); // Message Signal Generation

figure(1);

subplot(4,1,1);

plot(t,msgsignal);

xlabel("Time");

ylabel("Amplitude")

title("Information Signal");

carriersignal=ac\*cos(2\*%pi\*fc\*t) ;// Carrier Signal generation

subplot(4,1,2);

plot(t,carriersignal);

xlabel("Time");

ylabel("Amplitude")

title("Carrier Signal");

m = am/ac; //Modulation index

disp(m,"The Modulation Index is");

am\_mod=(1+m.\*msgsignal).\*carriersignal ;//Amplitude Modulation Generation

subplot(4,1,3);

plot(t,am\_mod);

xlabel("Time");

ylabel("Amplitude")

title("Amplitude Modulated Signal");

demod=am\_mod.\*carriersignal;

k= abs(fft(demod));

x=[ones(1,4\*fm),zeros(1,p-4\*fm)];

output=k.\*x;

subplot(4,1,4);

plot(t,ifft(output));

xlabel("Time");

ylabel("Amplitude")

title("Demodulated Message")

Output:

Enter the Information signal amplitude= 3

Enter the carrier signal amplitude( ac>am )= 5

0.6

"The Modulation Index is"

