**CODE :**

close all

clear all

clc

fs=8000;

fm=20;

fc=500;

Am=1;

Ac=1;

t=(0:0.1\*fs)/fs;

m=Am\*cos(2\*pi\*fm\*t);

c=Ac\*cos(2\*pi\*fc\*t);

s1=m.\*c;

subplot(4,3,1:3);

plot(t,m);

title('Modulating signal(fm=20Hz)');

subplot(4,3,4:6);

plot(t,c);

title('Carrier signal(fc=500Hz)');

subplot(4,3,7:9);

plot(t,s1);

title('DSB-SC Modulated signal');

r1=s1.\*c;

[b,a]=butter(2,0.01);

mr1=filter(b,a,r1);

subplot(4,3,10:12);

plot(t,mr1);

title('Demodulated signal(U)')