**Experiment-03**

**AMPLITUDE MODULATION AND DEMODULATION**

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);

Ka=0.5;

U=Ka\*Am;

s1=Ac\*(1+U\*cos(2\*pi\*fm\*t)).\*(cos(2\*pi\*fc\*t));

subplot(6,1,1);

plot(t,m);

title('modulating ');

subplot(6,1,2);

plot(t,c);

title('carrier');

subplot(6,1,3);

plot(t,s1);

title('under modulation');

Am=2;

Ka=0.5;

u=Ka\*Am;

s2=Ac\*(1+4\*cos(2\*pi\*fm\*t)).\*(cos(2\*pi\*fc\*t));

subplot(6,1,4);

plot(t,s2);

title('modulated');

Am=5;

Ka=0.5;

U=Ka\*Am;

s3=Ac\*(1+U\*cos(2\*pi\*fm\*t).\*cos(2\*pi\*fc\*t));

subplot(6,1,5);

plot(t,s3);

title('over modulated');

r3=s3.\*c;

[b,a]=butter(1,0.01);

mr3=filter(b,a,r3);

subplot(6,1,6);

plot(t,mr3);

title('demodulated ');

