Mawlana Bhashani Science & Technology University

Santosh, Tangail-1902

Department of   : Information and Communication Technology

Lab Report No   : 01

Lab Report Name   : Amplitude Modulation

Course Code   : ICT-3104

Course Title   : Analog and Digital Communication Lab

Submitted by:

Name   : Masudur Rahman Sourav

Student ID : IT-19025

Session   : 2018-19

Year   : 3rd

Semester   : 1st

Submitted to:

Dr. Monir Morshed

Professor,

Dept of ICT, MBSTU

Experiment name : AMPLITUDE MODULATION

AIM:

To perform the function of Amplitude Modulation

THEORY:

Amplitude modulation is defined as the process in which the amplitude of the carrier wave c(t) is varied about a mean value, linearly with the baseband signal.An AM wave may thus be dscribed, in the most general form, as a function of time as follows.

S(t)=Ac{1+Kam(t)}cos(2πfct)
Where Ka- Amplitude sensitivity of the modulator
S(t) –Modulated signal
Ac- carrier signal
m(t) –modulating signal

Code in MathLab:

```
t=0:0.001:1;
fc=input('enter carrier frequency');
fm=input('enter message frequency');
m=input('enter modulation index');
A=5;
Sm=A*sin(2*pi*fm*t);
subplot(3,1,1)
plot(t,Sm)
xlabel('Time');
ylabel('Amplitude');
title('Message Signal');

Sc=A*sin(2*pi*fc*t);
subplot(3,1,2)
plot(t,Sc)
xlabel('Time');
ylabel('Amplitude');
title('Carrier signal');

AM=(A+m.*Sm).*sin(2*pi*fc*t);
subplot(3,1,3)
plot(t,AM)
xlabel('Time');
ylabel('Amplitude');
title('Modulated signal');
```
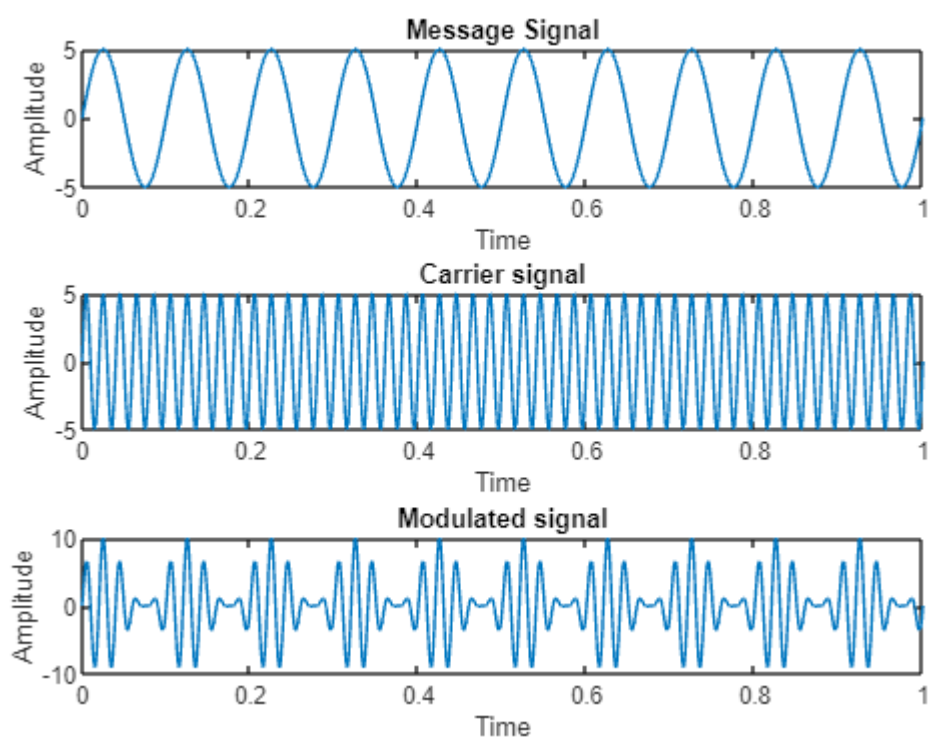
Input:

enter carrier frequency
40
enter message frequency
15
enter modulation index
1

Output:

Input:

enter carrier frequency
45
enter message frequency
15
enter modulation index
2

Output: