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BRANCH-INFORMATION TECHNOLOGY-1

**EXPERIMENT – 3(B)**

**OBJECTIVE:** Write a program in MATLAB to draw Pulse Amplitude Modulation waveform.

**PROGRAM:**

clc;

clear all;

close all;

t = 0:0.001:1;

fc = input('Enter the Frequency of Carrier Signal(square wave) = ');

fm = input('Enter the Frequency of Message Signal(sine wave) = ');

a = input('Enter the Amplitude of Message Signal = ');

b = input('enter the amplitude of carrier signal = ');

vc = b\*square(2\*pi\*fc\*t);

vm = a.\*sin(2\*pi\*fm\*t);

n = length(vc);

for i = 1:n

if (vc(i)<=0)

vc(i) = 0;

else

vc(i) = 1;

end

end

y = vc.\*vm;

subplot(3,1,1);

plot(t,vm); % plotting the message signal

xlabel('Time Axis');

ylabel('Amplitude');

title('Message Signal');

subplot(3,1,2);

plot(t,vc); % plotting the carrier signal

xlabel('Time Axis');

ylabel('Amplitude');

title('Carrier Signal');

axis([0 1 0 1.5]);

subplot(3,1,3);

plot(t,y);

xlabel('Time Axis');

ylabel('Amplitude');

title('Sampled Signal (Natural)');

axis([0 1 -a-3 a+3]);

**OBSERVATION:**

For the following waveforms, we use

1. Message wave Frequency = 10.0 Hz
2. Carrier Wave Frequency = 50.0 Hz
3. Amplitude of Message Signal = 4 Vpp
4. Amplitude of Carrier Signal = 3 Vpp