EXPERIMENT 2

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AIM: To study the method of phase shift keying.

Software used: MATLAB

Theory:

Phase Shift Keying:

Phase Shift Keying PSKPSK is the digital modulation technique in which the phase of the carrier signal is changed by varying the sine and cosine inputs at a particular time. PSK technique is widely used for wireless LANs, bio-metric, contactless operations, along with RFID and Bluetooth communications.

PSK is of two types, depending upon the phases the signal gets shifted: BPSK and QPSK.

BPSK: This is also called as 2-phase PSK or Phase Reversal Keying. In this technique, the sine wave carrier takes two phase reversals such as 0° and 180°. BPSK is basically a Double Side Band Suppressed Carrier DSBSCDSBSC modulation scheme, for message being the digital information.

QPSK: This is the phase shift keying technique, in which the sine wave carrier takes four phase reversals such as 0°, 90°, 180°, and 270°. If this kind of techniques are further extended, PSK can be done by eight or sixteen values also, depending upon the requirement.

Code and Output:

(i) Sine Wave Carrier Frequency = 25 Hz
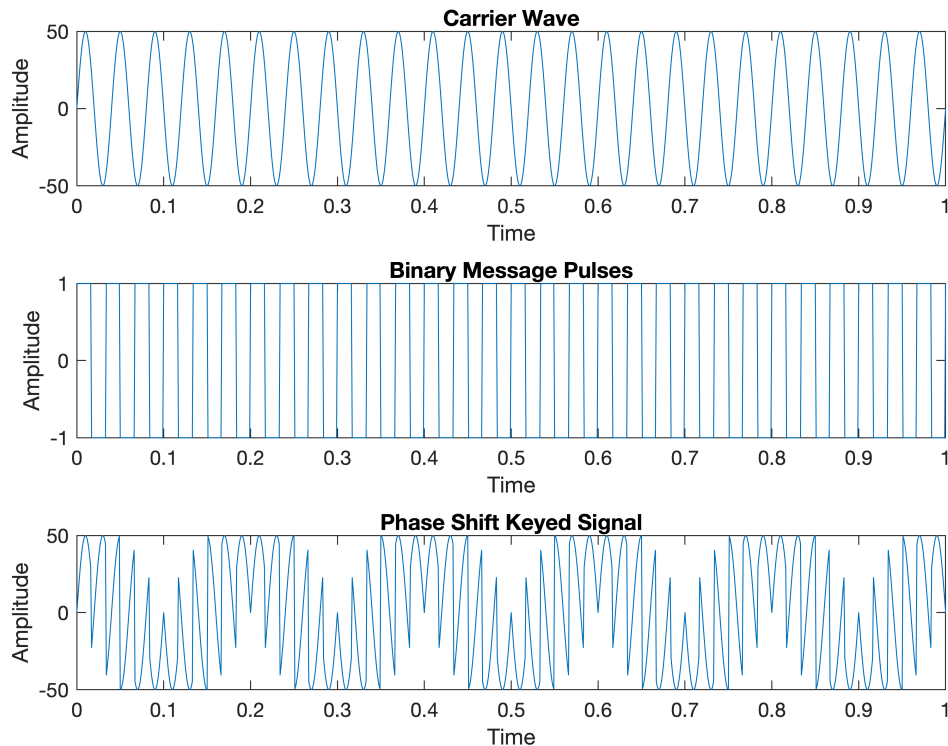
Message Signal Frequncy = 30 Hz

Amplitude = 50

```
close all
clear all
fc=input('Enter Freq of sine wave (Carrier):');
fm=input('Enter Freq of Periodic Binary Pulse (Msg):');
amp=input('Enter the Amplitude (for carrier and binary pulse): ');
t=0:0.001:1;
c=amp.*sin(2*pi*fc*t);
subplot(3,1,1);
plot(t,c);
xlabel('Time')
ylabel('Amplitude')
title('Carrier Wave')
m=square(2*pi*fm*t);
subplot(3,1,2);
plot(t,m);
xlabel('Time')
```

```
ylabel('Amplitude')
title('Binary Message Pulses');
w=c.*m;
subplot(3,1,3);
plot(t,w);
xlabel('Time')
ylabel('Amplitude')
title('Phase Shift Keyed Signal')
```


(ii) Sine Wave Carrier Frequency = 55 Hz

Message Signal Frequency = 40 Hz

Amplitude = 60

```
close all
clear all
fc=input('Enter Freq of sine waves (Carrier):');
fm=input('Enter Freq of Periodic Binary Pulses (Msg):');
amp=input('Enter the Amplitude (for carrier and binary pulse):(2) ');
t=0:0.001:1;
c=amp.*sin(2*pi*fc*t);
subplot(3,1,1);
plot(t,c);
xlabel('Time')
ylabel('Amplitude')
title('Carrier Wave')
m=square(2*pi*fm*t);
```

```
subplot(3,1,2);
plot(t,m);
xlabel('Time')
ylabel('Amplitude')
title('Binary Message Pulses');
w=c.*m;
subplot(3,1,3);
plot(t,w);
xlabel('Time')
ylabel('Amplitude')
title('Phase Shift Keyed Signal (2)')
```