LAB – 02: GENERATION OF ASK, FSK & PSK

Write the Matlab Code shown below:

```
f=5;
f2=10;
x=[1 1 0 0 1 0 1 1];          % binary input signal
nx=size(x,2);
i=1;
while i < nx+1                % Loop for binary bits nx
    t = i:0.001:i+1;
   if x(i)==1                 % If binary bit is 1
      ask=sin(2*pi*f*t);
      fsk=sin(2*pi*f*t);
      psk=sin(2*pi*f*t);
   else                       % if binary bit is 0
       ask=0;
       fsk=sin(2*pi*f2*t);
       psk=sin(2*pi*f*t+pi);
   end

subplot(3,1,1);               % Plot graph number one of three-ASK
   plot(t,ask);
   hold on;
   grid on;
   axis([1 8 -1 1]);
 title('Amplitude Shift Keying')
   subplot(3,1,2);            % Plot graph number two of three-FSK
   plot(t,fsk);
   hold on;
   grid on;
```

```
   axis([1 8 -1 1]);
title('Frequency Shift Keying');
subplot(3,1,3);                    % Plot graph number three of three-PSK
   plot(t,psk);
   hold on;
   grid on;
   axis([1 8 -1 1]);
 title('Phase Shift Keying')
   i=i+1;
end
```

RESULTS & DISCUSSION

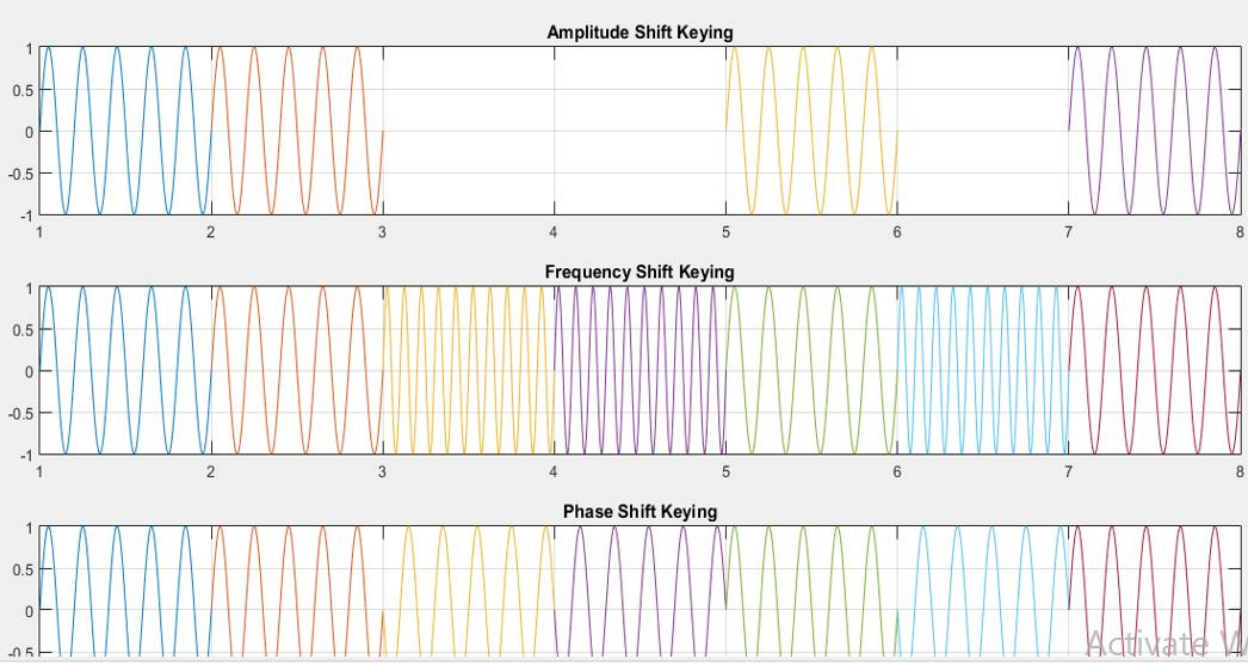
1. Run the program and discuss the various graphs

2. Change the input data stream x to [1 0 1 0 1 0 1 1] and note the new waveforms

3. Use the inbuilt function Matlab functions to display the spectrum of each digital modulation technique, i.e ASK, FSK and PSK. While modifying where necessary, use the code shown below.

```
N=1000;
k=1:N/2;
F=fft(v);
M=fft(x);
magF=abs([F(1)/N,F(2:N/2)/(N/2)]);
magM=abs([M(1)/N,M(2:N/2)/(N/2)]);
subplot(3,1,3);
plot(k,magF,k,magM,'r');
title('Spectrum')
```

1 1 0 0 1 0 1


Amplitude Shift Keying
Frequency Shift Keying
Phase Shift Keying
1
0.5
0
-0.5
-1
1
2
3
4
5
6
7
8