```matlab
clear all;

close all;

 clc;


% DC-Expt-04(b)

% M-ary PSK Modulation over Gaussian noise


SNR = 10; k = input('Enter no. of bits per

symbol: ');

M = 2^k; % M-ary modulation order


% Generate random data and modulate data = randi([0 M-

1], 1000, 1); y1 = pskmod(data, M);        % Modulated

signal y1n = awgn(y1, SNR, 'measured');   % Add Gaussian

noise


% Plot modulated signal with blue dots figure; h1 = scatterplot(y1);

set(gcf, 'Color', 'w');        % Set figure background to white set(gca,

'Color', 'w');        % Set axes background to white set(gca, 'XColor',

'k', 'YColor', 'k'); % Set axis color to black set(findobj(h1, 'Type', 'line'),

'MarkerEdgeColor', 'b'); % Blue dots title('PSK Modulated Signal',

'Color', 'k');
```
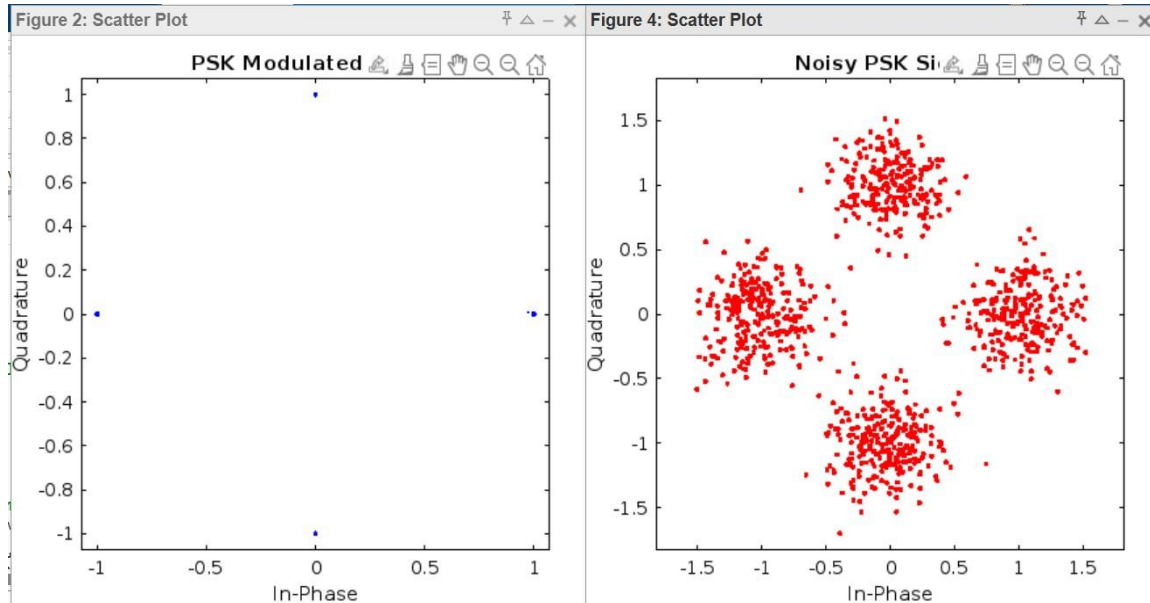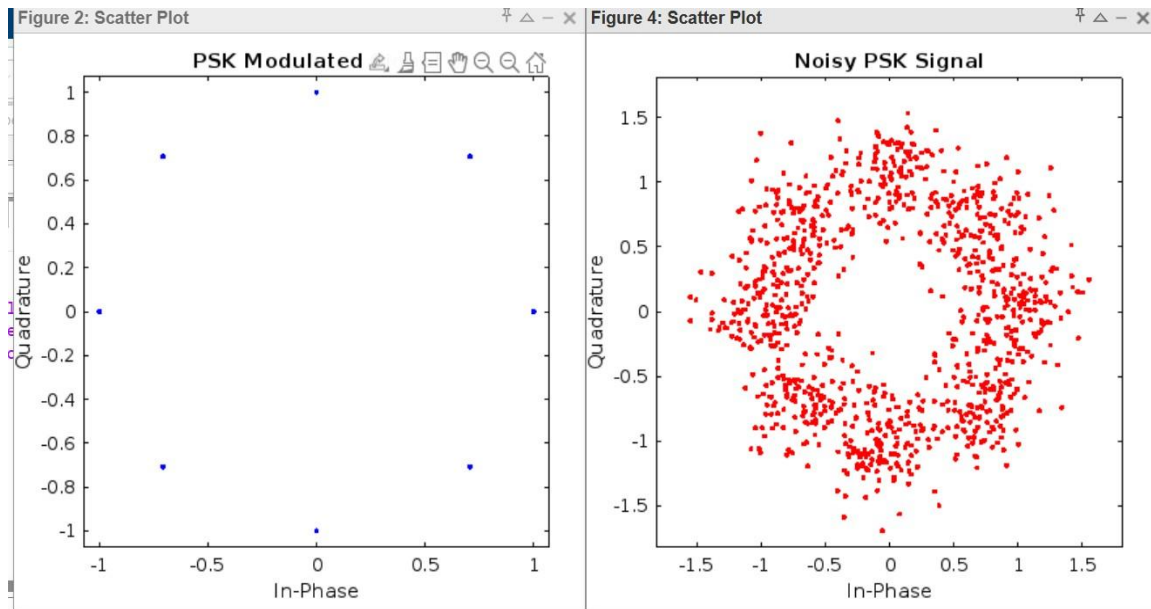
% Plot noisy signal with red dots figure; h2 = scatterplot(y1n); set(gcf,

'Color', 'w');   % Set figure background to white set(gca, 'Color',

'w');   % Set axes background to white set(gca, 'XColor', 'k',

'YColor', 'k'); % Set axis color to black set(findobj(h2, 'Type', 'line'),

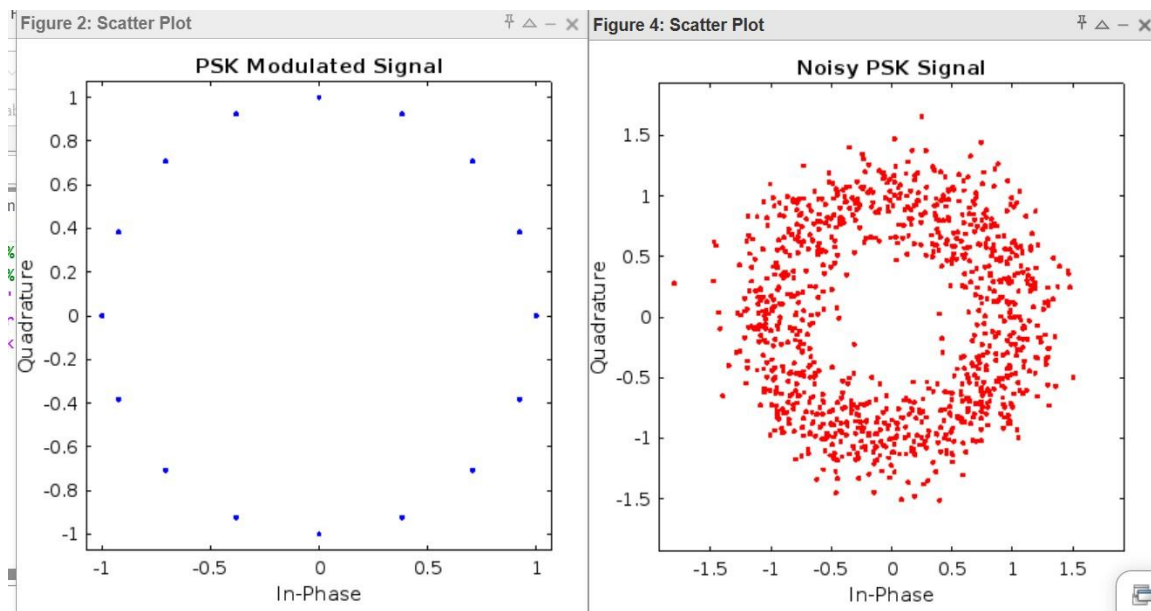'MarkerEdgeColor', 'r'); % Red dots title('Noisy PSK Signal', 'Color', 'k');

For k = 2;

For k = 3;

for k=4;

For k=5;

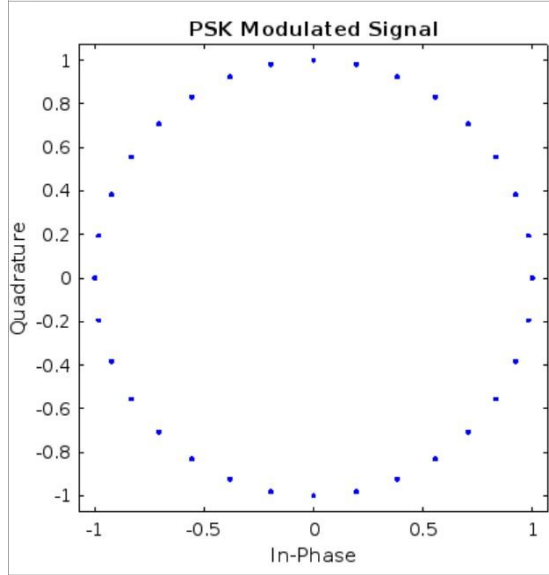Figure 2: Scatter Plot — PSK Modulated Signal

Figure 4: Scatter Plot — Noisy PSK Signal