**Experiment 07: BPSK receiver in presence of noise.**

clc;

close all;

data\_bits=10000;

b=(randn(1,data\_bits) > 5);

s=2\*b-1;

SNRdB=0:9;

for(k=1:length(SNRdB))

y=s+awgn(s,SNRdB(k));

error=0;

for(c=1:1:data\_bits)

if (y(c)>0&& s(c)==-1)||(y(c)<0&&s(c)==1)

error=error+1;

end

end

BER(k)=error/data\_bits;

end

figure(1);

semilogy(SNRdB, BER, 'r', 'Linewidth', 2);

grid on;

hold on;

SNR=10.^(SNRdB/10);

BER\_thBPSK=(1/2)\*erfc(sqrt(SNR));

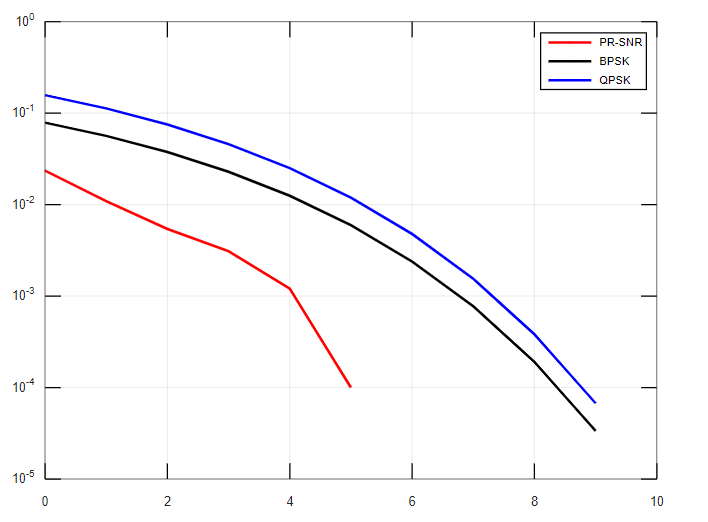
semilogy(SNRdB,BER\_thBPSK,'k', 'linewidth', 2);

BER\_thQPSK=erfc(sqrt(SNR));

semilogy (SNRdB, BER\_thQPSK, 'b', 'LineWidth',2);

legend('PR-SNR','BPSK','QPSK')

**OUTPUT-**

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