EXP 6

Title :

To study the theory of QASK

```
clc;
clear all;
close all;
choice = input ('Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -')
SNR = input('Enter Eb/eta ratio i.e bit energy to twice of PSD -')
if choice>4,
 M=input('Enter no. of symbols in integer power of 2 -');
end
if choice<4,
pe=0.5*erfc(sqrt(SNR));
end
if choice==4,
pe=2*erfc(sqrt(0.4*SNR));
end
if choice==5,
N=log2(M);
pe=erfc(sqrt(N*SNR)*sin(pi/M));
end
if choice==6,
N=log2(M);
pe=((M-1)/2)*erfc(sqrt(N*SNR/2));
end
Error_Probability=pe
```

Command Window

```
Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -
1

choice =

     1

Enter Eb/eta ratio i.e bit energy to twice of PSD -
25

SNR =

    25


Error_Probability =

   7.6873e-13
```

Command Window

```
Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -
2

choice =

     2

Enter Eb/eta ratio i.e bit energy to twice of PSD -
25

SNR =

    25


Error_Probability =

   7.6873e-13
```

Command Window

```
Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -
3

choice =

     3

Enter Eb/eta ratio i.e bit energy to twice of PSD -
25

SNR =

    25


Error_Probability =

   7.6873e-13
```

Command Window

```
Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -
4

choice =

     4

Enter Eb/eta ratio i.e bit energy to twice of PSD -
25

SNR =

    25


Error_Probability =

   1.5488e-05
```

Command Window

```
Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -
5

choice =

     5

Enter Eb/eta ratio i.e bit energy to twice of PSD -
25

SNR =

    25

Enter no. of symbols in integer power of 2 -
3

Error_Probability =

   1.2633e-14
```

Command Window

```
Enter 1:BPSK, 2:QPSK, 3:MSK, 4:16-QASK, 5:MPSK, 6:ortho.MFSK -
6

choice =

     6

Enter Eb/eta ratio i.e bit energy to twice of PSD -
25

SNR =

    25

Enter no. of symbols in integer power of 2 -
4

Error_Probability =

   2.3062e-12
```