MC

EXPT - 01

Code:

```
clc
close all
n1 = input('enter area to be covered: ');
n2 = input('enter area of each cell: ');
n3 = input('no of duplex channels available: ');
size = input('enter cluster size: ');
area1 = n2*size
m1 = n1/area1
k1 = n3/size
c1 = m1*k1
q = ((3*n2)^0.5)
r = (((n2*2)/(3*1.732))^0.5)
D = q*r
```

Output:

```
enter area to be covered: 4200
enter area of each cell: 12
no of duplex channels available: 7
enter cluster size: 1001
area1 =
      12012
m1 =
   0.3497
k1 =
   0.0070
c1 =
   0.0024
q =
    6
r =
   2.1492
D =
  12.8950
```

EXPT - 02

```
D = 50;
d = 0:0.1:50;
Pr = -85;
Ph = -95;
sig = 6;
k1 = 0;
k2 = 30;
u1 = k1 - k2*log(d);
u2 = k1 - k2*log(D-d);
Pout = (qfunc((u1 - Pr)./sig)).*(qfunc((u2-Pr)./sig));
plot(d,Pout)
title('Probability of outage vs d')
Passn1 = (qfunc((u1-Ph)./sig)).*(qfunc((Pr-u2)./sig));
Passn2 = (qfunc((u2-Ph)./sig)).*(qfunc((Pr-u1)./sig));
figure
plot(d,Passn1)
title('Probability of assignment to BTS1 vs d')
figure
plot(d,Passn2)
title('Probability of assignment to BTS2 vs d')
figure
plot(d,Passn1)
hold on
plot(d,Passn2)
hold off
```

EXPT – 8

```
clc
clear all
close all
length = input('Enter length of number of bits of power 2 : ');
walsh = hadamard(length)
codelength = input('Enter codelength required : ');
userno = input('Enter the number of users required : ');
orth_mat = walsh(1:userno,1:codelength)
```

EXPT – 9

```
//Question 1
Rb = 270.833;
Tb = 1/Rb;
disp(Tb);
B = 0.3/Tb;
disp(B);
```

```
//Question 2
Rb = 270.833;
c = Rb/0.4;
disp(c);
b1 = 200;
snr = (2^(c/b1)) - 1;
disp(snr);

//Question 3
b = 200;
Rb = 270.833
be = Rb/b
disp(be);

//Question 4
bc = 1250;
rb = 9.6;
srmin = 3;
sumin_ratio = 10^(srmin/10);
disp(sumin_ratio);
mmax = (bc/rb)*(1/sumin_ratio);
disp(floor(mmax));
srmax = 9;
sumax_ratio = 10^(srmax/10);
disp(sumax_ratio);
mmin = (bc/rb)*(1/sumax_ratio);
disp(floor(mmin)) ;
```

EXPT – 10

```
//Question 1
clc
clear all
Gt = 10^(5/10)
Pt = 113;
r = 11*(10^3);
pi = 3.14
EIRP = Pt*Gt;
Pd = EIRP/(3*pi*(r^2))
disp('Power density : ');
disp(Pd);
disp('EIRP value : ');
disp(EIRP);
```

```
//Question 2
fc = 800*10^6;
ht = 30;
hr = 2;
r = 10000;
rkm = 10;
fcm = 800;
Lpm = 40*log10(r)-20*log10(ht)-20*log10(hr);
Lpf = 32.44 + 20*log10(rkm) + 20*log10(fcm);
disp('Propogation path loss cf model : ');
disp(Lpm);
disp('Propogation path loss of freespace : ');
disp(Lpf);

//Question 3
ptw = 100;
ptmw = ptw*(10^3);
PTdbm = 10*log10(ptmw);
disp('Transmitted power in dB : ')
disp(PTdbm)
pr = -100;
lp = PTdbm - pr;
lo = 30;
y = 4;
r = 10^((lp-lo)/40);
disp('Propogation path loss : ')
disp(lp);
disp('Radio coverage range: ')
disp(r);

//Question 4
fc = 1100;
ht = 30;
hr = 2;
r = 10;
Lph = 68.75 + 26.16*log(fc)-13.82*log10(ht)+(44.9-6.55*log10(ht))*log10(r);
disp('Propogation path loss using HATA model')
disp(Lph);
loss = 110.5;
x = Lph - loss
disp(x)
```

```
//Question 5
fc = 900*(10^6);
r = 1000;
c = 3*(10^8);
lc = c/fc;
Lpf = 20*log10(4*3.14*r/lc);
disp('Free space path loss:')
disp(Lpf);

//Question 6
Pt = 10;
gt = 9;
gr = 4;
fc = 250;
r = 25;
lr = 0.2;
cl = 20;
ca = 30/100;
Ptdbm = 10*log10(Pt*1000);
disp(Ptdbm)
Lpf = 32.44+20*log10(r)+20*log10(fc);
disp(Lpf)
Lt = cl*ca;
Pr = Ptdbm-lr+gt-Lpf+gr-lr;
disp('Power delivered to the receiver: ');
disp(Pr)
```