```
ca = [0 0 0 0 1 0 1 0 1 1 1 0 1 1 0 0 0 1 1 1 1 1 0 0 1 1 0 1 0 0 1];
cb = [0 0 0 0 1 1 0 1 0 1 0 0 1 0 0 0 1 0 1 1 1 1 1 0 1 1 0 0 1 1 1];
% changing O's to 1 and 1's to -1
sa= [-2*ca] +1;
sb= [-2*cb] +1;
k= input('enter length of BA,BB matrix : ');
g= input('enter the power:');
%h = input('enter the value of h :');
ba = (rand(1,k) > 0.5); % generating random matrix ba
bb = (rand(1,k) > 0.5); % generating random matrix bb
ea=0;
eb=0;
% generating matrix ea and eb with the logic provided
for x = 1:k
   if ba(1,k)==1;
      ea=[ea -1*sa];
   else
      ea=[ea sa];
   end
end
for y = 1:k
   if bb(1,k)==1;
      eb=[eb -1*sb];
   else
      eb=[eb sb];
   end
end
etx=[ea+eb]; % adding ea and eb
%n = sqrt(p)*randn(1,k);
erx= awgn(etx,g); % simulating through the channel with power g
ner=erx/etx; % finding errors
b=1-ner;
b % displaying the ber
```