## Lecture 12 - PN Sequences and Scramblers

**Exercise 1**: How many flip-flops would be required to generate a ML PRBS of period 16383? How many ones would the sequence have?

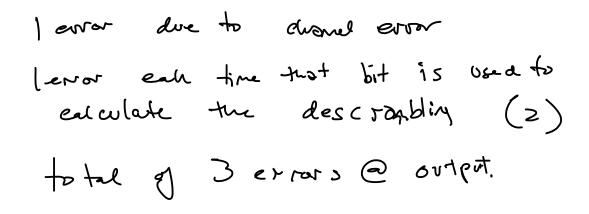
$$K = 16$$
? No...
 $Z^{16} = 65336$ 

$$period = 2^{k} - 1 = 16383$$
  
 $\#ones = 2^{k-1} = 8192$ 

$$2^{k-1} = 16383$$
  $2^{k} = 16384$   $k = \log_2 |6384 = 14$ 

Exercise 2: Why not?

**Exercise 3**: How many errors will appear in the output of a V.34 descrambler if there is one input error?



**Exercise 4**: What two signals would the receiver compare to

