Lec 11.

Ex. 1.a

$$R = \frac{b}{n} = \frac{6}{6} = \frac{4}{3} = 1\frac{1}{3} = 1.333$$

Ex. 1.b

$f_{space} = 500\,kHz$, $f_{mark} = 700\,kHz$, $R = 10\,kbps$

$BW = \Delta f + 2 \cdot R = 200\,kHz + 2 \cdot 10\,kbps = 220\,kHz$

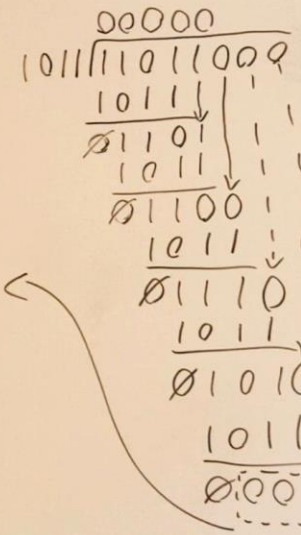
Ex 4.a

$x^3 + x + 1$ CRC polynomium

number of bits are equal to degree of the polynomiam. Therefore 3

Ex 4.b

Step 1:
The message: 11011
Step 2:
Append: 000
step 3:
Divisor: 1011



Data CRC
11011000

Ex.2.a

What representation

← 16-PSK

Ex. 2.b

16 symbols in the representation

Ex 2.c

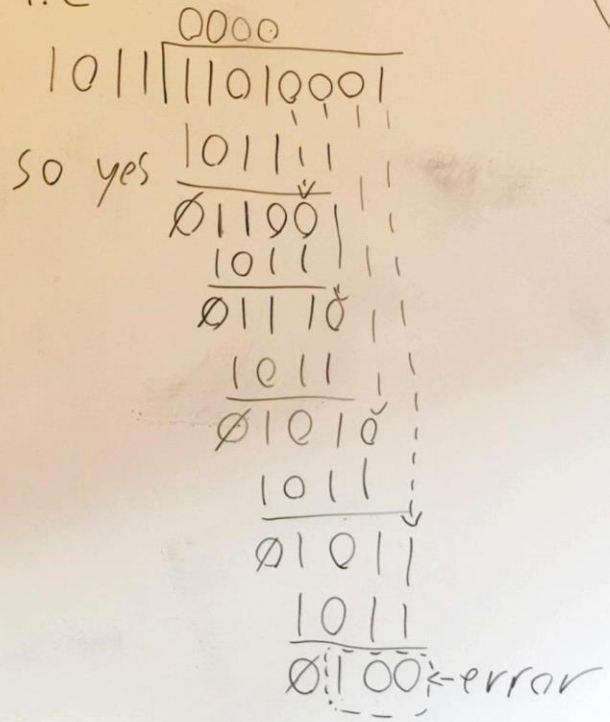
$$Log_2(16) = 4\left[\frac{bits}{symbol}\right]$$

Ex 2.d

bit rate?

$$4\left[\frac{bits}{symbol}\right] \cdot 10000\left[\frac{symbol}{s}\right] = 40000\left[\frac{bits}{s}\right]$$

4.C

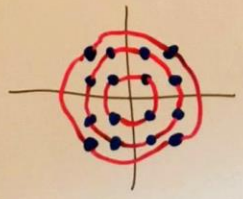


So yes

Ex 3.a

$4\left[\frac{bits}{symbol}\right]$

Ex 3.b



Ex 4.b error check