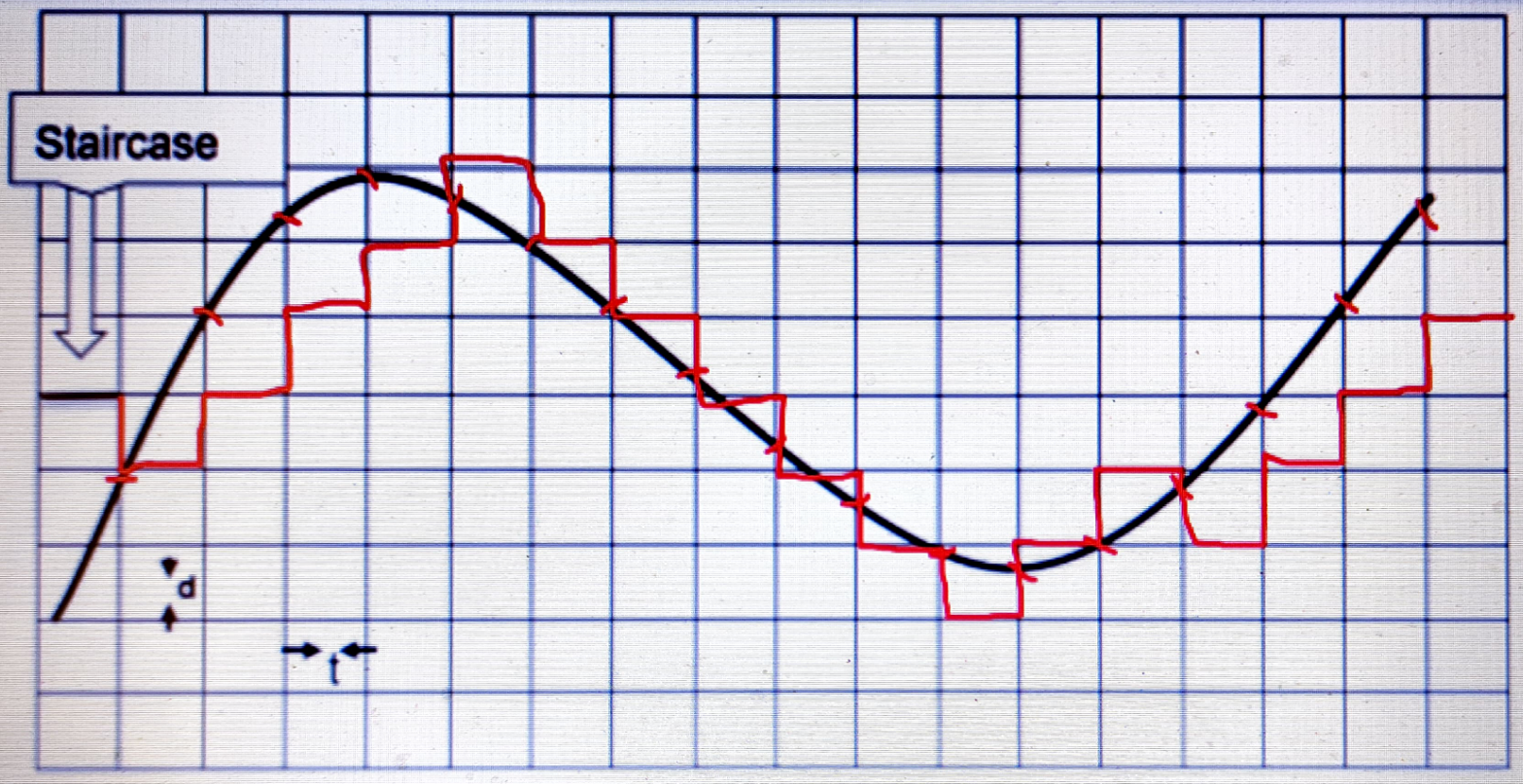
Follow me

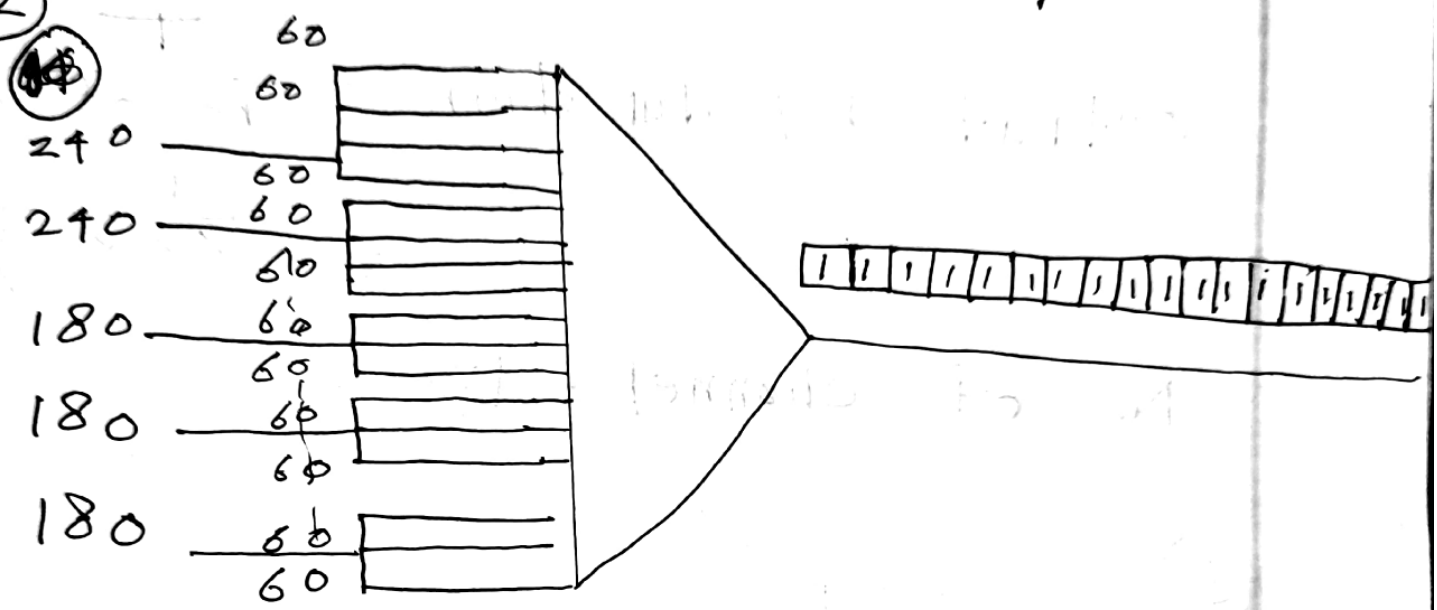


0011110000 0 0110111

Summer-22

(1) 001111000000110111

(2)



Frame size $= 17 \times 1 + 1$
$= 18$

Frame duration / Input slot duration,

$60\ kb \longrightarrow 1s$

$\Rightarrow 60 \times 10^3 b \longrightarrow 1s$

$\Rightarrow 1b \longrightarrow \frac{1}{60 \times 10^3} s$

Frame rate,

$\frac{1}{60 \times 10^3} s = 1$ frame

$\therefore 1s = 60 \times 10^3$ "

datarate = frame rate x frame size

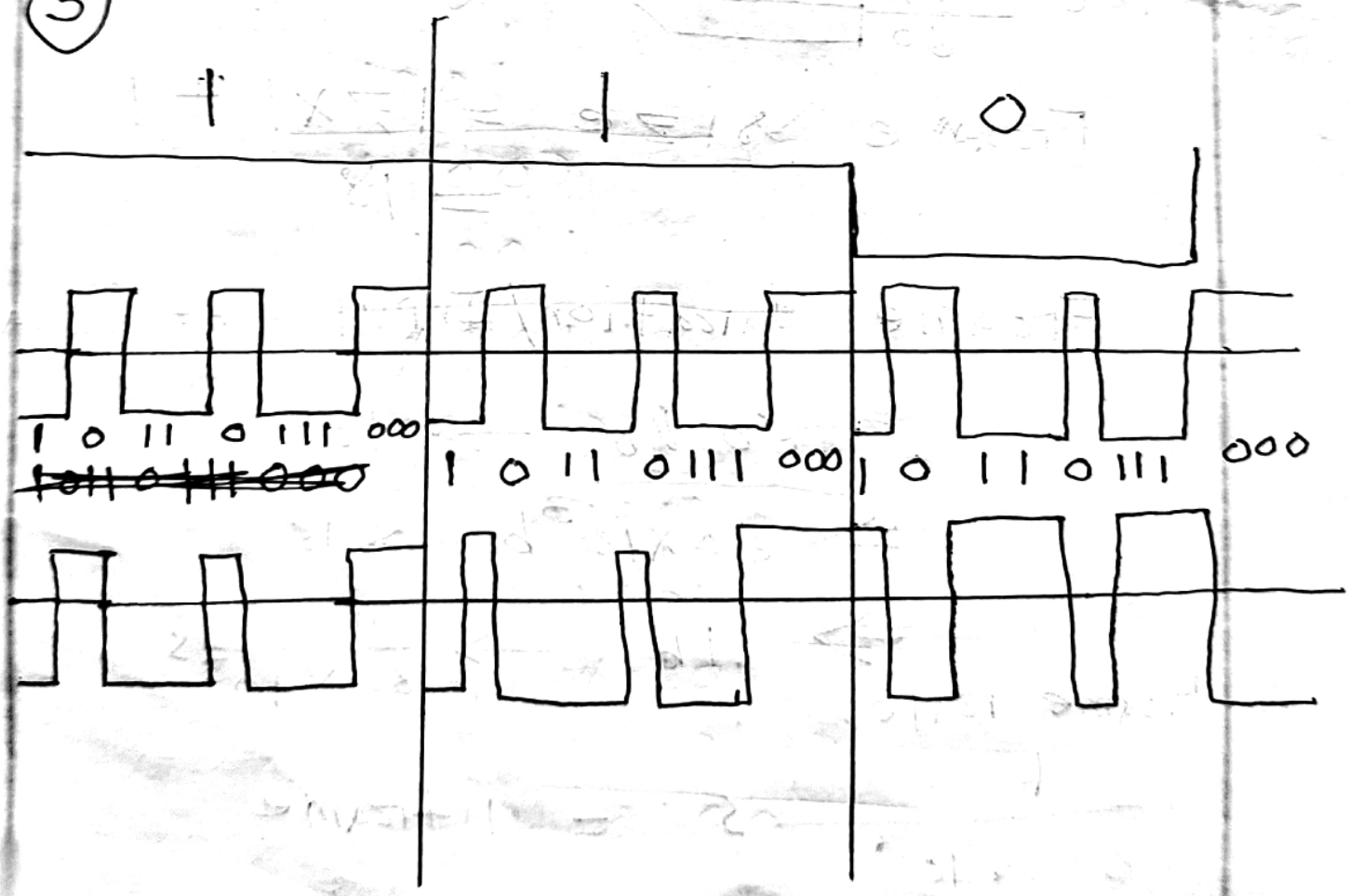
$= 60 \times 10^3 \times 18$

output bit duration $= \dfrac{T}{\text{no. of channel}}$

$= \dfrac{1}{60 \times 10^3 / 17}$

No of channel = 17

(3)



2 (b) Bandwidth without guard

$= 12 \times 5.2$

$= 62.4\,KHz$

Total guard band = Bandwidth with guard − Bandwidth without guard

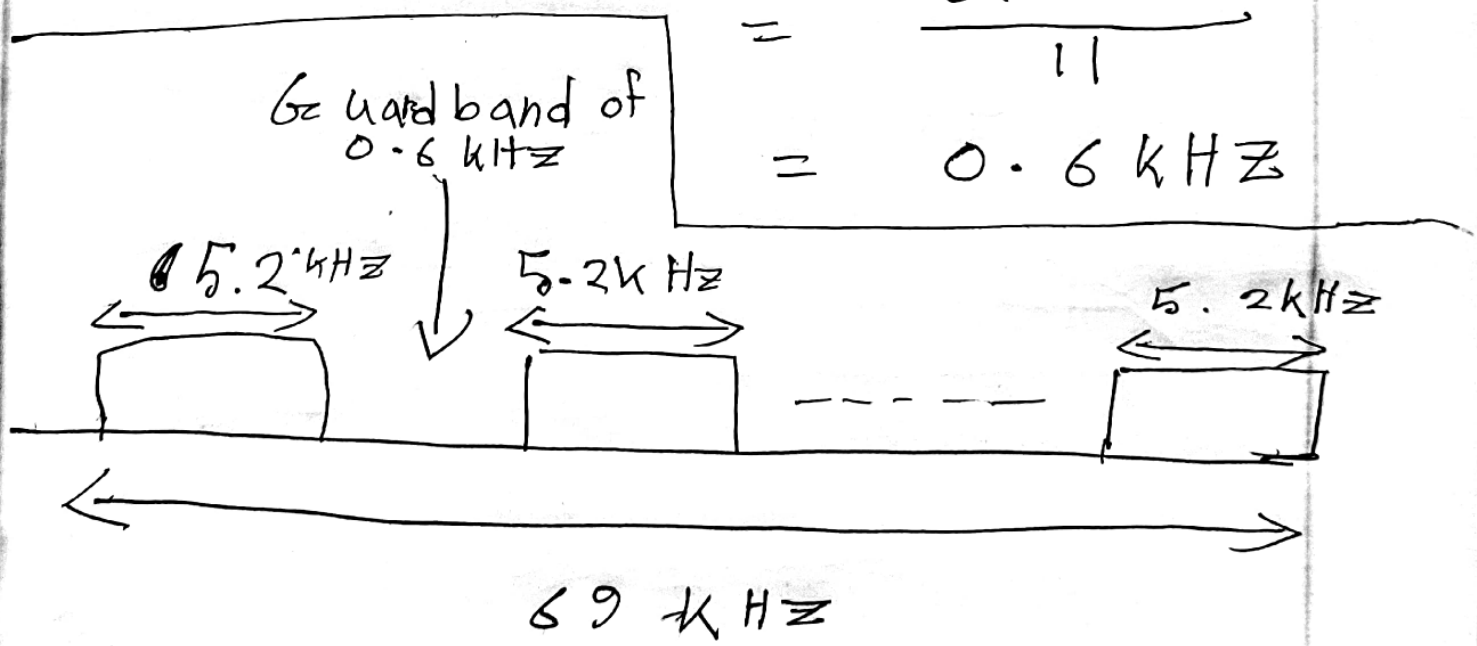
$= 69 - 62.4\,KHz$

$= 6.6\,KHz$

Bandwidth of each guardband

$= \frac{6.6\,KHz}{11}$

$= 0.6\,KHz$



④ ⓐ 11011011 = data word

divisor $= x^3 + 1$

$= 1.x^3 + 0.x^2 + 0.x^1 + 1.x^0$

$= 1001$

```
                 11000111
1001 | 11011011000 (Augmented dataword)
       1001
       ----
       ϕ1001
        1001
        -----
        ϕ0000110
           1001
           -----
            1111
            1001
            -----
            ϕ1100
             1001
             -----
             ϕ1010
              1001
              -----
              ϕ011
```

Sent data : 11011011011

Transmitted message:

1101101011

corrupted message:

1111101101

```
        11100111
1001 | 11111011011
       1001
       ----
       01101
        1001
        -----
        01000
         1001
         ------
         001110
           1001
           -------
           01111
            1001
            -------
            01101
             1001
             -------
             0100
```

~~Receive~~ Error detected.