

Erwin Darsono - 6182001002

No.
Date

Parity Checking

Odd Parity

①	1	0	1	0	1	1	1	0
	1	1	0	0	1	0	1	1
	1	0	1	1	1	1	0	0
	0	0	1	0	0	1	1	0

∴ error free

Even Parity

②	1	0	1	0	1	1	1	0
	1	1	0	0	1	0	1	1
	1	0	1	1	1	1	0	0
	0	0	1	0	0	1	1	0

∴ Error, pada $m_{(2,1)}$

CRC

1) $D = 1101\ 0110\ 11$

$G = x^4 + x + 1$

Divisor = 10011 ($k = 5 - 1 = 4$)

Sender:

$$\begin{array}{r}
 1111 \\
 10011 \overline{) 1101\ 0110\ 1100\ 00} \\
 \underline{1001\ 1} \\
 100\ 1110\ 1100\ 00 \\
 \underline{10011} \\
 10\ 1100\ 00 \\
 \underline{10\ 011} \\
 1010\ 00 \\
 \underline{10011} \\
 \boxed{11\ 10} \rightarrow \text{Remainder}
 \end{array}$$

Receiver side

$$\begin{array}{r}
 1111 \\
 10011 \overline{) 1101\ 0110\ 1111\ 10} \\
 \underline{1001\ 1} \\
 100\ 1110\ 1111\ 10 \\
 \underline{10011} \\
 10\ 1111\ 10 \\
 \underline{10\ 011} \\
 1001\ 10 \\
 \underline{1001\ 1} \\
 0
 \end{array}$$

\therefore Error Free

② $D = 1111 \ 1111 \ 1101 \ 01$

$G = x^4 + x + 1$

Divisor = $10011 \ (k=5-1=4)$

Sender

$$\begin{array}{r}
 \begin{array}{c} 11111111 \\ \hline 10011 \end{array} \overline{) 1111 \ 1111 \ 1101 \ 0100 \ 00} \\
 \underline{10011} \\
 11001111101010000 \\
 \underline{10011} \\
 1010111101010000 \\
 \underline{10011} \\
 11011101010000 \\
 \underline{10011} \\
 100010101010000 \\
 \underline{10011} \\
 1001010000 \\
 \underline{10011} \\
 110000 \\
 \underline{10011} \\
 10110 \\
 \underline{10011} \\
 101
 \end{array}$$

Receiver Side \Rightarrow

Receiver side

```

      1111111
10011 | 1111 1111 1101 0110 1
      1001 1
      ---
      110 0111 1101 0110 1
      100 11
      ---
      10 1011 1101 0110 1
      10 011
      ---
      1101 1101 0110 1
      1001 1
      ---
      1000 101 0110 1
      1001 1
      ---
      1 001 0110 1
      1 001 1
      ---
      1110 1
      1001 1
      ---
      111 0
  
```

∴ Tidak error free