

Universidade Federal de Santa Catarina

EEL7123/EEL510457

Solução Problema 9.1

Problema 9.1. Faça a multiplicação 42×43 usando:

- a) Algoritmo *Shift – Left*.
- b) Algoritmo *Shift – Right*.

a) Para o algoritmo *Shift – Left* obtenho:

$$\begin{array}{r}
 \begin{array}{r}
 101010 \rightarrow 42_{(10)} \\
 \times 101011 \rightarrow 43_{(10)} \\
 \hline
 000000 \\
 + 000000 \\
 \hline
 101010 \\
 0101010 \leftarrow \\
 + 1010100 \leftarrow \\
 \hline
 1010100 \\
 10101000 \leftarrow \\
 + 101010 \\
 \hline
 11010010 \\
 110100100 \leftarrow \\
 + 000000 \\
 \hline
 110100100 \\
 1101001000 \leftarrow \\
 + 101010 \\
 \hline
 1101110010 \\
 11011100100 \leftarrow \\
 + 101010 \\
 \hline
 11100001110 \rightarrow 1806_{(10)}
 \end{array}
 \end{array}$$

a) Para o algoritmo *Shift – Right* obtenho:

$$\begin{array}{r}
 \begin{array}{l}
 \times \quad 101010 \rightarrow 42_{(10)} \\
 \quad \quad \quad 101011 \rightarrow 43_{(10)} \\
 \hline
 \begin{array}{l}
 \rightarrow 000000 \\
 + 0000000 \\
 + 101010 \\
 \hline
 \rightarrow 101010 \\
 + 0101010 \\
 + 101010 \\
 \hline
 \rightarrow 1111110 \\
 + 01111110 \\
 + 000000 \\
 \hline
 \rightarrow 01111110 \\
 + 001111110 \\
 + 101010 \\
 \hline
 \rightarrow 111001110 \\
 + 0111001110 \\
 + 000000 \\
 \hline
 \rightarrow 0111001110 \\
 + 00111001110 \\
 + 101010 \\
 \hline
 \rightarrow 11100001110 \\
 + 011100001110 \rightarrow 1806_{(10)}
 \end{array}
 \end{array}
 \end{array}$$