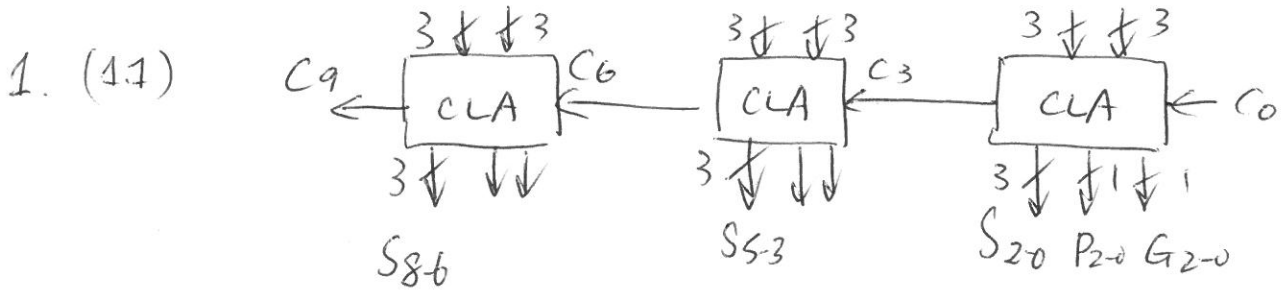


Assignment 4 Reference Solutions

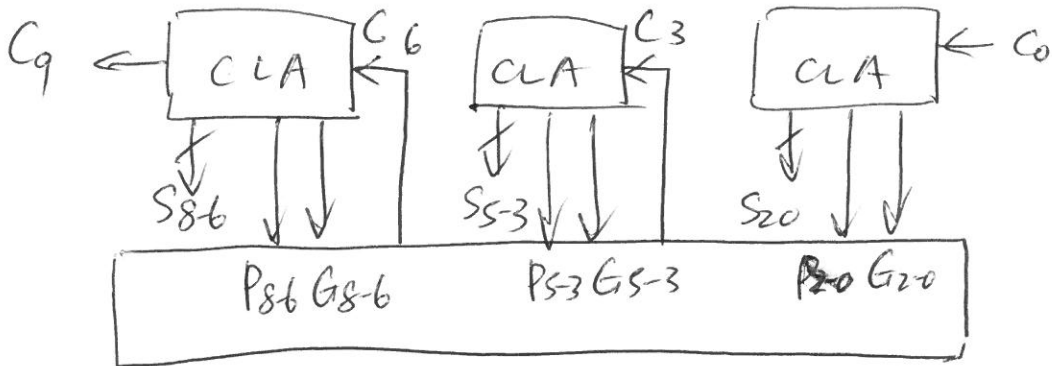


Critical path: $C_0 \rightarrow C_3, C_3 \rightarrow C_6, C_6 \rightarrow C_8, C_8 \rightarrow S_8$ ($10\tau_g$)

Worst case delay: $3\tau_g + 2\tau_g + 2\tau_g + \cancel{1\tau_g} = \cancel{8\tau_g}$

$3\tau_g$

(1.2)



Critical Path: $C_0 \rightarrow G_{2-0}, G_{2-0} \rightarrow C_6, C_6 \rightarrow C_8, C_8 \rightarrow S_8$ ($10\tau_g$)

Worst Case delay: $3\tau_g + 2\tau_g + 2\tau_g + \cancel{3\tau_g} = \cancel{8\tau_g}$

2. Q: 1100010110 (10)

Booth: 0 -1 0 0 +1 -1 +1 0 -1 0

Fast Booth: -m 0 +m +2m -2m

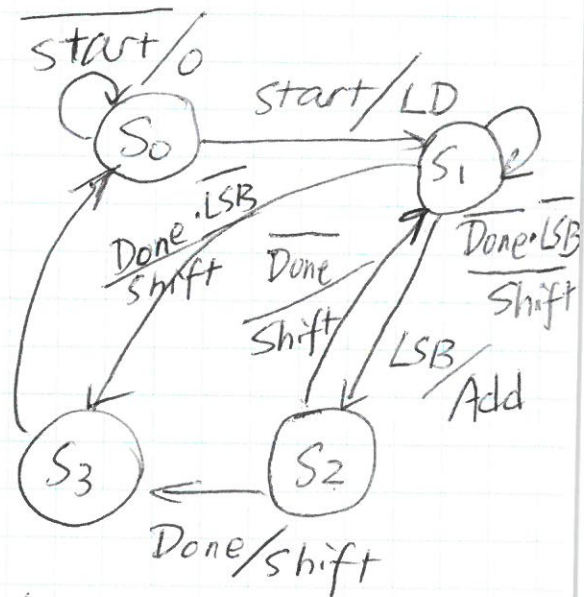
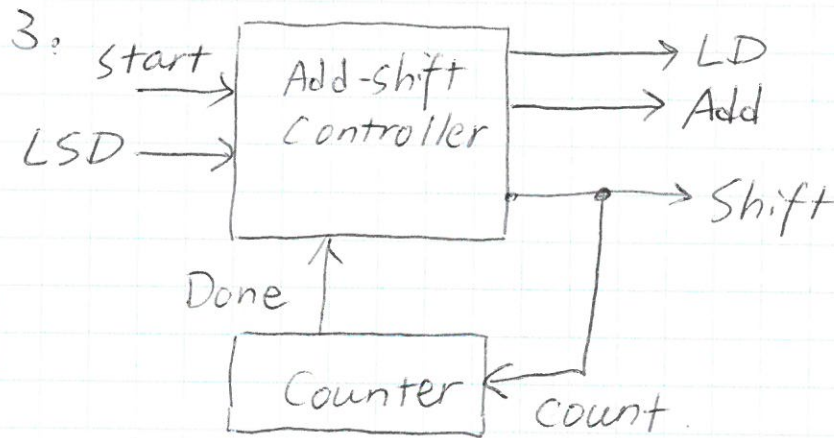
2.

$$\begin{array}{r}
 10100101110 \\
 \times 01001110010 \\
 \hline
 01011010010 \\
 1111110100101110 \\
 000001011010010 \\
 11110100101110 \\
 + 0101101001000 \\
 \hline
 0101,0010,0010,0100,0100 \quad 52244H
 \end{array}$$

Booth Code

$$\begin{array}{r}
 10100101110 \\
 \times 0-2m +m -m 0 -2m \\
 \hline
 010110100100 \\
 01011010010 \\
 11110100101110 \\
 + 010110100100 \\
 \hline
 0101,0010,0010,0100,0100 \quad 52244H
 \end{array}$$

Fast Booth Code



Mealy FSM Example