

AIM OF THE EXPERIMENT:-

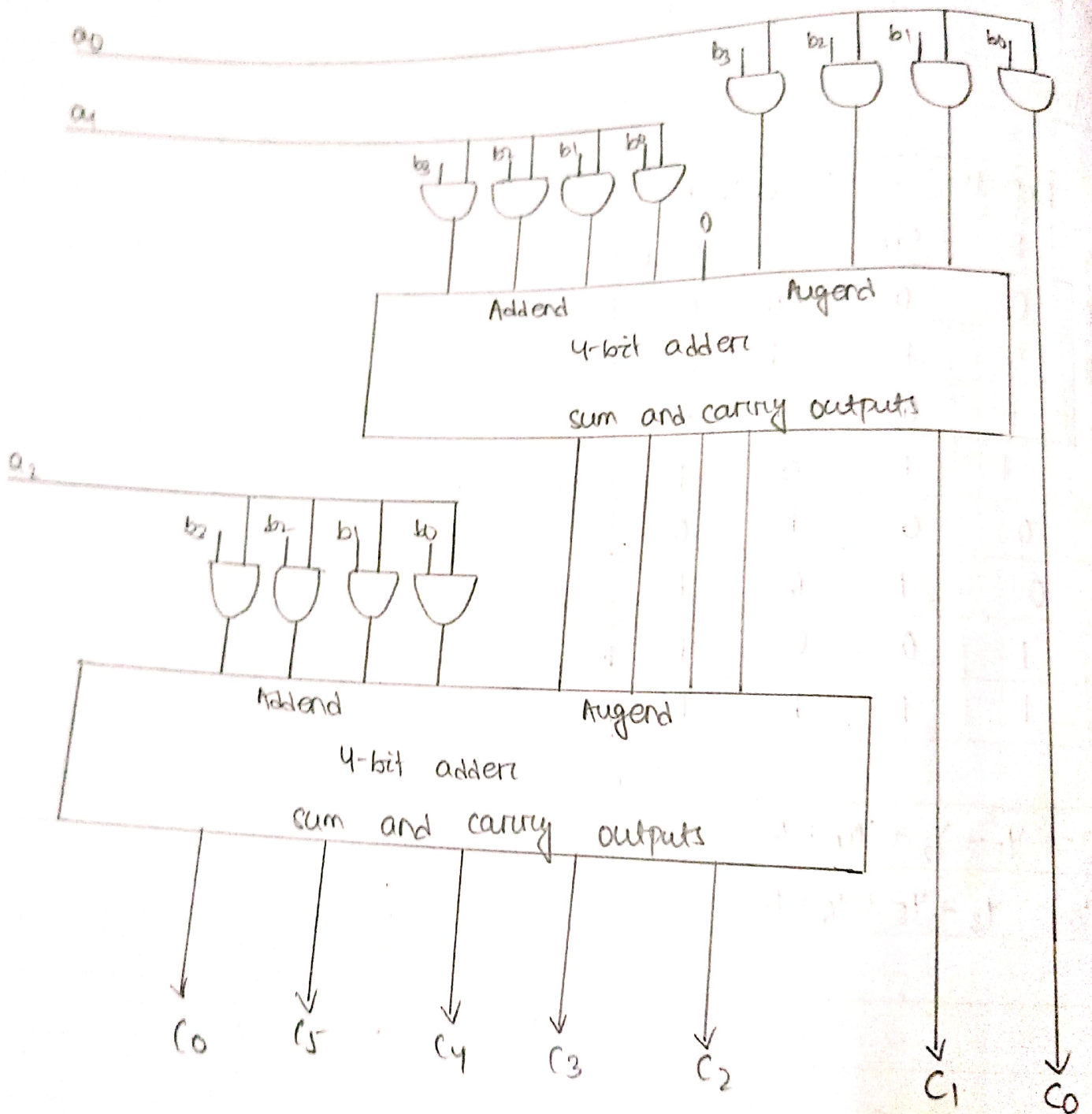
To design and verify 4:3 Array multiplier

$$\begin{array}{r}
 \begin{array}{cccc}
 b_3 & b_2 & b_1 & b_0 \\
 \times & a_2 & a_1 & a_0 \\
 \hline
 a_0b_3 & a_0b_2 & a_0b_1 & a_0b_0 \\
 a_1b_3 & a_1b_2 & a_1b_1 & a_1b_0 \\
 a_2b_3 & a_2b_2 & a_2b_1 & a_2b_0 \\
 \hline
 c_6 & c_5 & c_4 & c_3 & c_2 & c_1 & c_0
 \end{array}
 \end{array}$$

Example:-

$$\begin{array}{r}
 \begin{array}{cccc}
 1 & 0 & 1 & 1 \\
 \times & 1 & 0 & 1 \\
 \hline
 1 & 0 & 1 & 1 \\
 0 & 0 & 0 & 0 \\
 1 & 0 & 1 & 1 \\
 \hline
 1 & 1 & 0 & 1 & 1 & 1
 \end{array}
 \end{array}$$

CIRCUIT DIAGRAM:



AIM

To design and verify 4x4 array multiplier

$$\begin{array}{r}
 \times \begin{array}{cccc} b_3 & b_2 & b_1 & b_0 \\ a_3 & a_2 & a_1 & a_0 \end{array} \\
 \hline
 a_0b_3 & a_0b_2 & a_0b_1 & a_0b_0 \\
 a_1b_3 & a_1b_2 & a_1b_1 & a_1b_0 \\
 a_2b_3 & a_2b_2 & a_2b_1 & a_2b_0 \\
 a_3b_3 & a_3b_2 & a_3b_1 & a_3b_0 \\
 \hline
 c_7 & c_6 & c_5 & c_4 & c_3 & c_2 & c_1 & c_0
 \end{array}$$

example :-

$$\begin{array}{r}
 \times \begin{array}{cccc} 1 & 1 & 1 & 1 \\ 1 & 0 & 1 & 1 \end{array} \\
 \hline
 1 & 1 & 1 & 1 \\
 1 & 1 & 1 & 1 \\
 0 & 0 & 0 & 0 \\
 1 & 1 & 1 & 1 \\
 \hline
 1 & 0 & 0 & 1 & 0 & 1 & 0 & 1
 \end{array}$$

Circuit diagram

