

UNSIGNED MULTIPLICATION:-

$$C, A = A + M$$

$$\begin{array}{r} A = 0000 \\ + M = 1011 \\ \hline 1011 \end{array}$$

$$C = 0; A = 1011$$

First Cycle

$$C, A = A + M$$

$$\begin{array}{r} A = 0010 \\ + M = 1011 \\ \hline 1101 \end{array}$$

$$C = 0; A = 1101$$

Third Cycle

$$C, A = A + M$$

$$\begin{array}{r} A = 0110 \\ + M = 1011 \\ \hline 10001 \end{array}$$

$$C = 1; A = 0001$$

SIGNED MULTIPLICATION

BOOTH'S ALGORITHM

$$M = 0111 \quad -M = 1001$$

$$\begin{array}{r} A = A - M \\ A = 0000 \\ + -M = 1001 \\ \hline A = 1001 \end{array} \quad \left. \vphantom{\begin{array}{r} A = A - M \\ A = 0000 \\ + -M = 1001 \\ \hline A = 1001 \end{array}} \right\} \text{FIRST CYCLE}$$

$$\begin{array}{r} A = 1110 \\ + M = 0111 \\ \hline A = 10101 \end{array} \quad \left. \vphantom{\begin{array}{r} A = 1110 \\ + M = 0111 \\ \hline A = 10101 \end{array}} \right\} \text{THIRD CYCLE}$$

UNSIGNED DIVISION :-

$$A = A - M$$

$$A = 0000$$

$$M = 0011$$

$$-M = 1101$$

$$A = A - M$$

$$A = 0000$$

$$+ -M = 1101$$

$$A = 1101$$

FIRST
CYCLE

Restore ($A = A + M$)

$$A = 1101$$

$$+ M = 0011$$

$$10000$$