

- Table shows the operation and result at each stage of multiplication.

Stage	Multiplier	Functions	C	A3	A2	A1	A0	Q3	Q2	Q1	Q0
0	0	Initial Values	0	0	0	0	0	1	0	0	1
1	1	Add	0	1	1	0	1	1	0	0	1
		Shift	0	0	1	1	0	1	1	0	0
2	0	Shift	0	0	0	1	1	0	1	1	0
3	0	Shift	0	0	0	0	1	1	0	1	1
4	1	Add	0	1	1	1	0	1	0	1	1
		Shift	0	0	1	1	1	0	1	0	1

**Q : 1 Describe the rules for the use of carry bit in your multiplier.**

**Ans:** Carry bit holds the MOST SIGNIFICANT BIT in 4-bit addition (for example:  $01111 + 00011 = \underline{1}0010$ ). D flip-flop is used to store the memory of the carry bit after addition and then shifted to A3. Before the next stage starts, the value of C becomes zero which means D flip-flop 'resets'.







