① Mcand = $-1/4$     Mplier = $-3/4$

$+1/4 = 0.010$     $+3/4 = 0.110$

$-1/4 = 1.110$     $-3/4 = 1.010$

| State | A | B | $f_n$ |
|-------|---|---|-------|
| 0 | 0000 | 1010 | Load |
| 1 | 0000 | 0101 | Sh |

$$\begin{array}{r} +1110 \\ \hline 1110 \end{array} \rightarrow$$

| | | | |
|-------|---|---|-------|
| 2 | 1111 | 0010 | Ad Sh |
| 3 | 1111 | 1001 | Sh |

$$\begin{array}{r} +0010 \\ \hline 0001 \end{array} \rightarrow$$

| | | | |
|-------|---|---|-------|
| 4 | 0000 1100 | | Cm Ad Sh |

$0.001100 = +3/16$ ✓

(2) BCD Adder

a)
$$8 \qquad\qquad 1000$$
$$\underline{+7} \qquad\qquad \underline{+0111}$$
$$15 \qquad\qquad 1\,1\,1\,1 \quad > 9$$
$$\qquad\qquad\qquad \underline{+0110}$$
$$\qquad\qquad 1\;0\,1\,0\,1$$

$$\underset{1}{\underbrace{\phantom{1}}} \qquad \underset{5}{\phantom{0101}} \checkmark$$

b)



c)