∴ To make sum at 5th posn. odd, we must have $c_4 = 1$.

• Suppose rev_4 and n_4 have opposite parity. ∴ $c_9 = 0$ to make sum at 4th position odd. Also, rev_{14} and n_{14} have opposite parity. ∴ $c_{13} = 0$ to make sum at 14th posn. odd.

• Now, ∵ $c_4 = 1$, ∴ $c_{14} = 1$ (prev carries are 0)

• Suppose rev_3 and n_3 have opposite parity. ∴ rev_{15} and c_{15} have opposite parity. ∴ ∵ $c_{14} = 1$, ∴ sum at 15th posn. is even.

∴ rev_3, n_3 ; rev_{15} and n_{15} have same parity. ∴ $c_2 = 0$ to make sum at 3rd posn. odd. Sum at 15th posn. is odd, since $c_{14} = 1$.

• Suppose rev_2 and n_2 have opposite parity. ∴ $c_1 = 0$ to make sum at 2nd posn. odd. ∴ rev_{16} and n_{16} have opposite parity. Also then, $c_{15} = 0$ to make sum at 16th position odd.

∵ $c_2 = 1$, ∴ $c_{16} = 1$. (prev carries are 0)

• Suppose rev_1 and n_1 have opposite parity. ∴ rev_{17} and n_{17} have opposite parity

∵ $c_{16} = 1$, ∴ sum at 17th position is even.

• ∴ rev_1 and n_1 must have same parity ∵ $c_0 = 0$, Sum at 1st position is even.

• Suppose rev_2 and n_2 have same parity. ∴ $c_1 = 1$ to make sum at 2nd position odd. Also, now rev_{16} and n_{16} have same parity. Also then, $c_{15} = 1$ to make sum at 16th position odd.

• Suppose rev_1 and n_1 have opposite parity. ∴ rev_{17} and n_{17} have opposite parity. If $c_{16} = 1$, sum at 17th position is even.

∴ $c_{16} = 0$

Now, $(c_{15} + n_{16} + rev_{16})/10 = c_{16} = 0$

$(c_1 + n_2 + rev_2)/10 = c_2 = 1$

$c_1 = c_{15} = 1$ $n_2 = rev_{16}$ $n_{16} = rev_2$

∴ $c_{16} = 0$ is not possible (Contradiction)