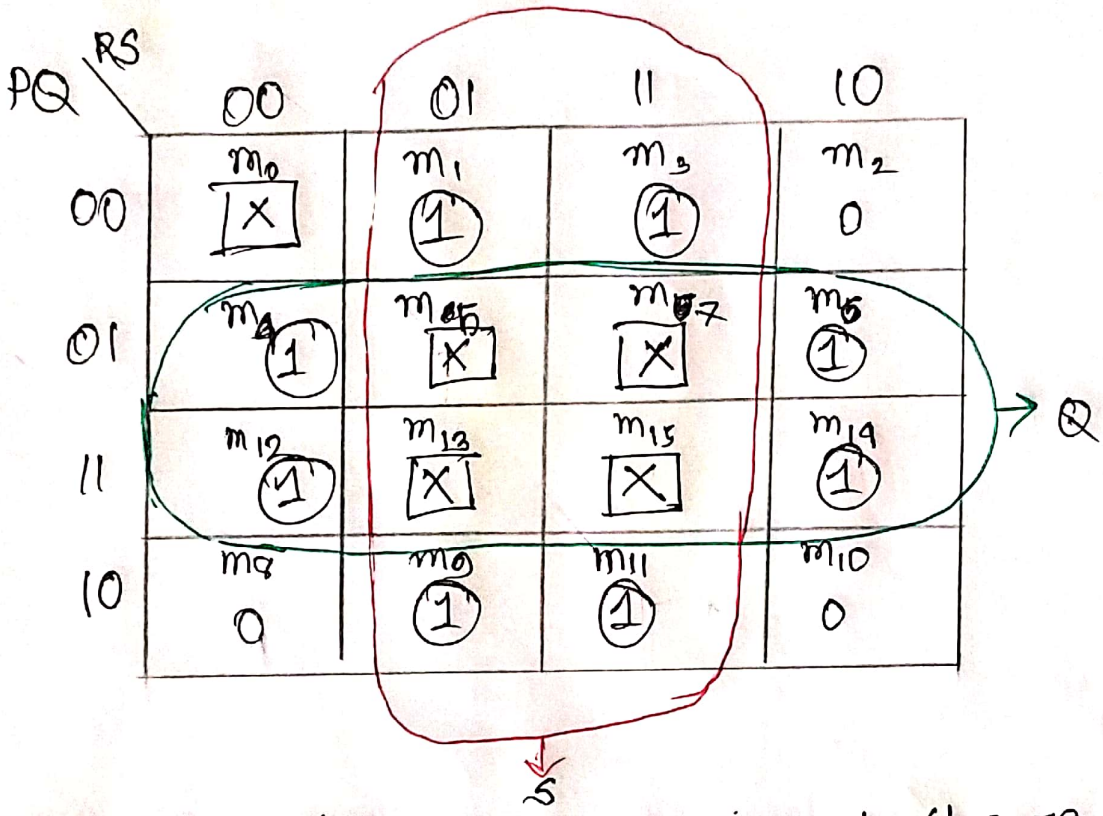
1. $f(P,Q,R,S) = \Sigma(1,3,9,6,0,11,12,14) + d(0,5,7,13,15)$



Here, by putting m_5, m_7, m_{13}, m_{15} don't care values as 1, we get,

(i) $m_1, m_3, m_5, m_7, m_{13}, m_{15}, m_9, m_{11}$ adjacents where value is S

(ii) $m_4, m_5, m_7, m_6, m_{12}, m_{13}, m_{15}, m_{14}$ adjacents where value is Q.

∴ Simplified function is $F = Q + S$