

Tutorial 3

ECSE104L

Ques 1. Find the sum of minterm and maxterm expression for the following Boolean function.

- i. $F(A,B,C) = A + BC'$
- ii. $F(A,B,C,D) = AB + BC + CD$

Ques 2. Find the Literal cost (L), Gate input cost (G), Gate input cost with NOTs (GN) of the given Boolean function.

- i. $F(A,B,C) = A'B'C' + A'B'C + AB'C' + AB'C + ABC' + ABC$
- ii. $F(A,B,C,D) = A'B'CD' + A'B'CD + A'BCD' + A'BCD + AB'CD' + AB'CD$

Ques 3. Apply Boolean algebra rules and minimize the expression given in question 2 and recalculate Literal cost (L), Gate input cost (G), Gate input cost with NOTs (GN) of minimized expression.

Ques 4. Find the Literal cost (L), Gate input cost (G), Gate input cost with NOTs (GN) of the given Boolean function.

- i. $F(A,B,C) = m_1 + m_3 + m_4 + m_5 + m_7$
- ii. $F(A,B,C,D) = \sum_m (0, 1, 3, 6, 7, 9, 10, 11, 12, 13)$
- iii. $F(A,B,C) = M_0 + M_1 + M_4 + M_5$

Ques 5. Apply K-map to minimize the expression given in question 4 and recalculate Literal cost (L), Gate input cost (G), Gate input cost with NOTs (GN) of minimized expression.

Reading :-

The Map Method for Synthesis of Combinational Logic Circuits". *Transactions of the American Institute of Electrical Engineers, Part I: Communication and Electronics*. **72** (9): 593–599. November 1953. doi:10.1109/TCE.1953.6371932