

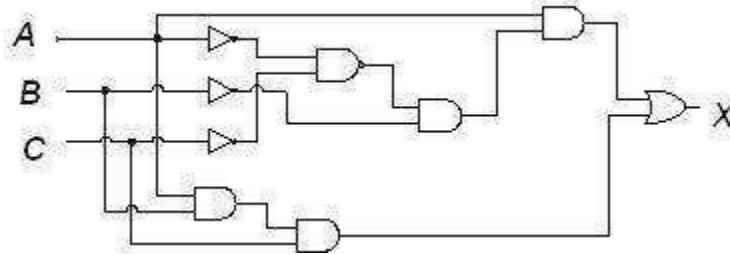
Objectives

1. To obtain Boolean expression for the output based on the given logic diagram
2. To simplify the logic circuit using Boolean algebra techniques, construct the simplified circuit and verify the truth table for the simplified expression.

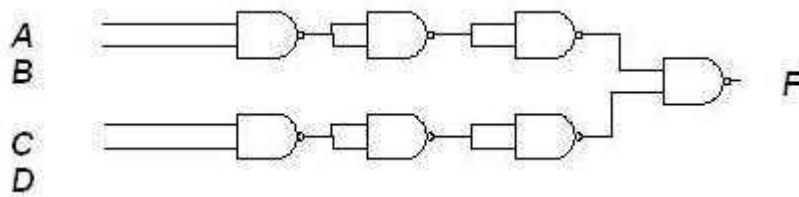
Tasks

Questions to be discussed in the lab and to be submitted in the report

1. (i) Identify the Boolean expression for the given logic diagram and obtain the truth table.



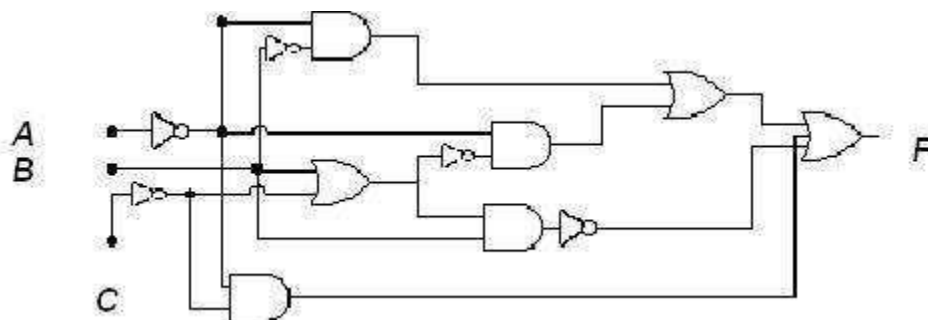
- (ii) Simplify the identified expression using the Boolean rules, laws and theorems. Draw the truth table for the simplified Boolean expression. **Construct the circuit only for the simplified expression and verify the truth table experimentally.**
- (i) Obtain sum of products expression for the given NAND network and draw the truth table.



- (ii) **Construct the logic diagram only by using AND/OR/NOT gates and verify the truth table experimentally**

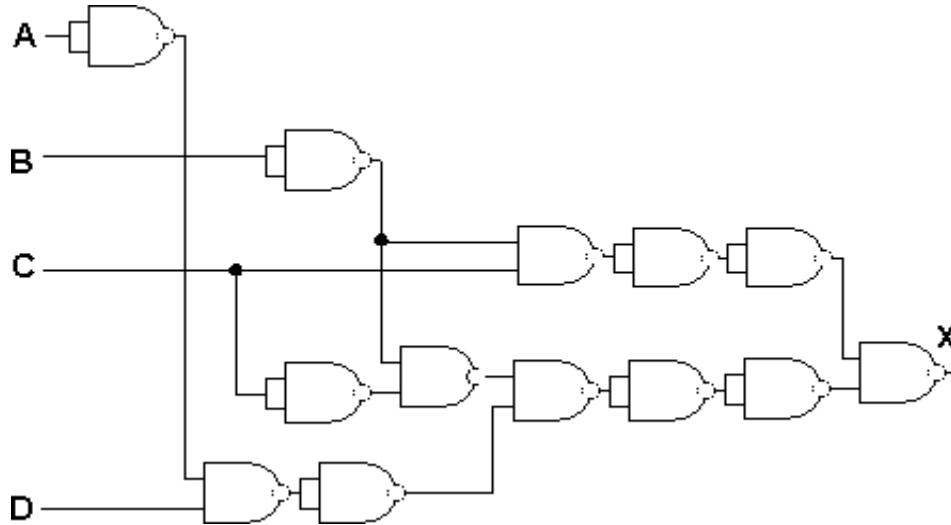
Questions to be submitted in the report:

- (i) Identify the Boolean expression for the given logic diagram and obtain the truth table.

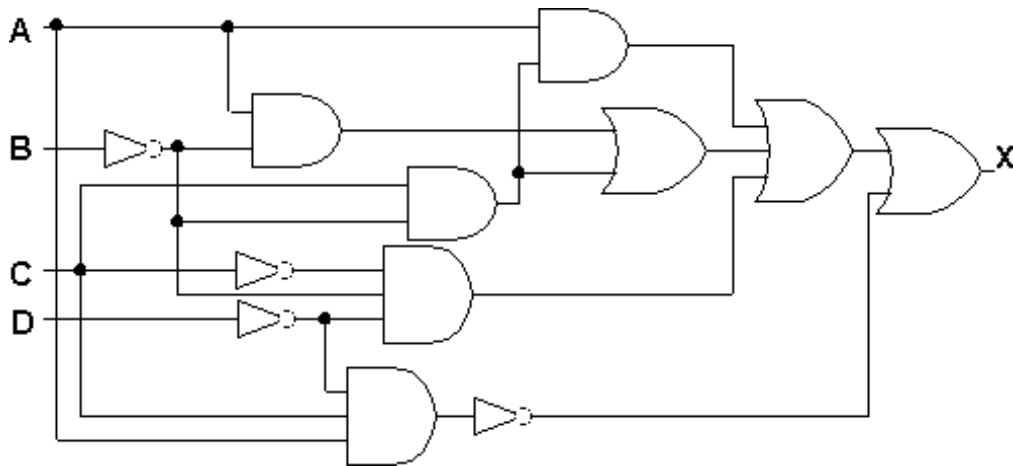


- (ii) Simplify the identified expression using the Boolean rules, laws and theorems. Draw the truth table for the simplified Boolean expression. Construct the circuit for the simplified expression.

4. (i) Obtain sum of products expression for the given NAND network and draw the truth table.
 (ii) Construct the logic diagram using AND/OR/NOT gates.



5. (i) Identify the Boolean expression for the given logic diagram and obtain the truth table.



- (ii) Simplify the identified expression using the Boolean rules, laws and theorems. Draw the truth table for the simplified Boolean expression. Construct the circuit for the simplified expression.

Report Format

- Objectives
- Original logic circuit and original Boolean expression (you may snapshot from CircuitVerse)
- Truth table for the original Boolean expression
- Simplified Boolean expression (show all the steps)
- Truth table for the simplified Boolean expression
- Simplified logic circuit (you may snapshot from CircuitVerse)

Circuit Construction:

- Submit the constructed circuit (each question) via CircuitVerse, and label it according to question. Be self-explanatory.

Assessment:

Total marks = 20/10=2%

Construction/Connections of the Circuit and Result during lab session= Tutor to pick one of the questions for students to do and submit via CircuitVerse = 10 marks,
 Report =5 Questions × 2 marks = 10 marks